

INSIDE DOPE

by GEORGE F. TAUBENECK

Story of the Week
Best Is Yet to Come
Quotes of the Week

Story of the Week

"Not without a touch of nostalgic pride, a man in our industry tells about his surprise visit he paid to his colleague's dormitory house. It was after midnight when he arrived the way to his son's room. Upon finding it he knocked on the door. En following exchange (over the transom).

"Is Hank Blank in?"

"Nope."

"Does he live in this room?"

"Yep. Carry him in."

Best Is Yet to Come

Carrier Corp. will celebrate its golden anniversary this year. The first scientific system for controlling both humidity and temperature in addition to cleaning and circulating air was designed in 1902 to solve a color printing production problem at Sackett-Wilhelms Lithographing and Publishing Co., Brooklyn, N. Y.

Designer of the system was Willis H. Carrier, then a young research engineer not quite a year out of Cornell university and employed by Buffalo Forge Co. The official birthdate has been set at July 17, 1902—the date on the earliest-known completed drawing for the Sackett-Wilhelms system.

Born in working clothes, modern air conditioning during its first 50 years has become a symbol of American life and progress and a basic factor in the development of the highest standard of living the world has ever known.

Actually, it bore no name for at least four years of its life. In 1906 Stuart W. Cramer, a textile mill engineer, evolved the phrase "air conditioning" from "yarn conditioning," a term widely known in that industry. Its derivation suggests a relationship important in many industries—that the condition of the air determined the condition of a product made from moisture-absorbing materials.

The name became popular, and now is used generally to cover the entire wide range of applications which combine the functions of Willis Carrier's original system. As in so many great events, the birth of the industry came as the result of a fortunate coincidence—the right man given the right problem at the right time.

Many attempts had been made through the ages to create indoor weather tailored to human needs—most of these centering around temperature regulation. Central heating, used by the Romans, was an important development. When Dr. John Gorrie invented the first commercially successful refrigeration machine in this country in the mid-1800's, he was seeking a way to make ice to cool the sickrooms of tropical fever patients. By 1902 Alfred R. Wolff, a consulting engineer, had designed air-cooling systems for Carnegie Hall, the autopsy room of Cornell Medical college, the New York Stock Exchange board room, and the Hanover National Bank.

Early in the same year the Sackett-Wilhelms concern posed the problem which set the capstone of humidity control upon all earliest efforts and started the air conditioning industry on its way. This firm was trying to meet multi-color printing process deadlines for a number of magazines, among them the popular humorous weekly of that day, "Judge."

Variations in humidity were causing paper to contract, expand, or wrinkle between printings of each color, interfering with quality work and endangering production schedules. Specifications for the installation called for dehumidifying in summer to a specific moisture content—a common feature of present-day air conditioning but never before attempted successfully.

When young Carrier was given the problem he had just completed a research program which produced the first tables ever compiled for accurate selection of fan-coil heating equipment. After a brief period of testing moisture removal by chemical ad-

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Mfrs. Get Copper, Room Cooler, Aluminum Windfall In 3rd Quarter

WASHINGTON, D. C.—During the quarter starting July 1, manufacturers will be able to get just about all the copper and aluminum they want, as a result of recent National Production Authority actions.

Builders, however, will get more copper and aluminum, but will not get the structural steel for homes they had expected to get for the third quarter, NPA indicated.

Small manufacturers will be able to write their own tickets for up to 10,000 lbs. of copper and 20,000 lbs. of aluminum for use in July, August, and September. Previously they were scheduled to self-certify for only 500 lbs. of copper and 1,000 lbs. of aluminum.

Larger users of these metals are divided into two categories and will be able to self-certify as follows:

The first group will be able to self-certify for up to 20,000 lbs. of copper and 40,000 lbs. of aluminum provided they do not exceed 100% of the amount they used in their 1950 (Concluded on Page 29, Column 4)

Hotpoint Realigns Headquarters Staff

CHICAGO—In a realignment of his headquarters staff, John F. McDaniels, marketing manager, Hotpoint Inc., announced a number of internal shifts to strengthen planned selling activities.

Howard J. Scaife, San Francisco district manager, is being named sales manager, with headquarters at Chicago. His post at San Francisco

3 Refrigerator Prices Drop

CHICAGO—Reductions of from \$10 to \$26 on three refrigerator models was announced recently by John McDaniels, marketing director of Hotpoint Inc. They are:

Model	Old Price	New Price
EAI61	\$209.95	\$199.95
ECS82	279.00	269.00
EDS7	356.00	329.95

will be filled by V. E. Koch, formerly a zone manager in that area.

Scaife has been with the company for 21 years and has had extensive managerial experience in all phases (Concluded on Page 4, Column 5)

McGuire Fair Trade Bill Goes to Senate

WASHINGTON, D. C.—The Senate Interstate and Foreign Commerce Committee recently reported the McGuire fair trade bill to the floor of the Senate.

Sen. Edwin C. Johnson, committee chairman, said the House-approved measure was reported "without recommendation" for further action in order to put the matter before the Senate without further delay.

Sen. Pat McCarran had asked that the Senate Judiciary Committee, which he heads, be allowed to study the bill with respect to anti-trust angles. Sen. Johnson said he thought Sen. McCarran "has a pretty good case" for this request.

Before reporting the bill, Sen. Johnson's committee rejected a proposal that the so-called "home town" amendment favored by the American Fair Trade Council be added to the measure. This proposed amendment would prohibit inter-state sale of branded or fair-traded merchandise at cut prices.

(Concluded on Page 8, Column 1)

Room Coolers, Freezers In Mart Spotlight

Buying Action Light, But Mfrs. Say Last 30 Days Reveal Improvement

CHICAGO — In a slow-starting Summer Homefurnishings Market, the standouts in interest and buyer attention in the appliance field were home freezers and room air conditioners.

However, despite lack of much buying action at the market, manufacturers of other appliances reported generally that sales in the past 30 days revealed considerable improvement and a general spirit of optimism—contrasted with the outlook earlier in the year—seemed to prevail. Prices at the market were firm, most major appliance manufacturers having made adjustments a few weeks ago.

Two other developments in this field were these:

1. The Office of Price Stabilization clarified its recently-issued interpretation regarding sales of beef with freezers or refrigerators. It explained that freezer-food plan retailers who sell beef are not required to sell that item at plan prices to consumers who want to buy beef but not a freezer.

2. In Los Angeles, U. S. Department of Justice agents were said to be looking into charges that food packagers are refusing to sell to provision houses supplying freezer-food operators due to pressure from supermarkets.

Amana said it is offering dealers

"all the tools necessary"

to successfully merchandise its plan. From getting leads to making the sale," the company stated, "every promotion aid has been pre-tested (Concluded on Page 29, Column 1)

More complete stories on some of the new products shown at the Summer Homefurnishings Markets will be found on pages 6 and 7 of this issue.

prominent, but also in other areas in which there had been little activity on such plans.

Room cooler producers were benefiting from the heat wave that was setting record temperatures in the north central and northeastern states.

The lineup of new products at the market was headed by the complete new line of Universal major appliances offered by Universal Major Appliances, the new setup headed by Morton Clark.

Included in the line are six refrigerators, ranging in price from \$199.95 to \$339.95 and including automatic defrosting models; six electric range models from an apartment house model to a double-oven model at \$399.95; six home freezer models in 8, 12, and 17-cu. ft. sizes; two automatic clothes washers featuring new-type washing action; electric and gas clothes dryers; room coolers in 1/2-hp. and 1/4-hp. sizes; gas and electric water heaters, both table top and tank type; a portable dehumidifier; and television sets with 20 and 24-in. screens.

Norge introduced a new stylishly designed 11-cu. ft. upright home freezer, with a suggested list price of \$429.95. Freezer includes many new features, including three "Jet Freeze" shelves and an adjustable shelf arrangement. Also shown by Norge was a new full-skirted conventional washer with a capacity of 9 lbs. of dry clothes, and a suggested list price of \$119.95.

Amana has added to its line two chest-type freezers which were shown for the first time. Model 140 has a capacity of 14 cu. ft. or 490 lbs. of food while model 80 is an 8-cu. ft. freezer holding 280 lbs. of food. The larger model has a 1/4-hp. hermetic unit; the other a 1/2-hp. unit. Both models are offered with the five-year food spoilage protection plan in addition to a five-year warranty on the

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Frigidaire Automatic Clothes Drier--

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means there is no lint or objectionable moist, warm air exhausted into the room, no line traps or screens and no ducts or plumbing to install.

The drier is finished inside and out with lifetime porcelain and the top, front, and sides are finished with acid-resisting porcelain to prevent rusting or corrosion. The work table top can be used for sorting or stacking clothes.

The back panel contains the timing and heat controls. The "Dry-O-Matic" timer allows up to 95 minutes of drying time and can be stopped at any time to add or remove clothes without changing the setting.

A switch next to the timer turns on the interior light and a signal light on the panel glows when the drier is operating. The variable heat control located on the left side of

the back panel, is plainly marked for medium, high, and low, as well as fabric classifications.

The door and loading port into the drum is located high enough to permit a clothes basket to be placed directly below.

The porcelain-on-steel drum allows clothes to tumble freely. It is enclosed in an inner shell which is completely sealed except for the inlet and outlet openings.

Two new Radiantube heating units are completely sealed-in to obtain maximum results and to avoid any exposed electrical connections. An ozone lamp in the drying compartment stays on while the drier is operating to give the clothes a fresh "sunshine smell."

Over-all dimensions of the drier are: width 30 in., depth 26½ in., height at back 41 in.

Farr Discusses Distributors' Salesmen--

(Concluded from Page 1)

your salespeople. We, in dealing with the ultimate consumer, aren't doing our job right if we consider the sale completed after we take the customer's money.

"We want to make sure that it's installed right, that it's giving satisfaction, that the customer is using it properly, and, if we find it's not the right product for that home, that it's exchanged for one that will bring that customer into the store again." He termed this the "dual role of being solicitous and solicitors."

Of the dealers participating in the survey, 72½% felt they were being called on often enough. Fifty per cent felt they should be called on weekly, 37% twice a month. However, only 44% said the salesmen calling on them spent their time in the store constructively.

Overstock Exchanges

Among the services dealers felt distributor salespeople should render were: suggestions and help with window displays, 50%; assistance in preparing ads, 67%; assistance in maintaining balanced inventories, 92%, and help in exchanging overstock with other franchised dealers, 98%.

He drew the parallel between the dealer's trade-in responsibilities and the distributor salesman's merchandising duties. "We have to get the old appliance out of the customer's home and out of his service so that there's room and need for a new one. You have to get our present merchandise out of our stores and into consumers' hands so that there's room and money for new inventory.

"Neglect this, have your salesmen schooled just to pile on more goods or to make an occasional special deal with us, and eventually you'll find the dealer's resentment has been incurred and his business driven to, or won over by, the distributor who has secured—and proved that he deserved—the dealer's confidence."

Choose your representatives from men with a basic knowledge of appliance retailing practices and principles. They should have at least two years of retail experience.

Get them to win the confidence and respect of the dealer and the respect of his salesmen.

Require every distributor salesman to spend at least one day and night per week on a retail sales floor.

See that he knows the dealer's salesmen and their problems.

Have him make certain that they have adequate line folders and specification sheets and that the dealer's salesmen are conversant with them.

Know the Product

He should know the product well enough to impress the dealer with his knowledge. Without being a mechanic, it's well for the salesman to know how to make minor adjustments, to demonstrate with a sure hand and to know the names of the parts.

He should read at least one trade paper and have his own subscription so that he can catch trends and gain a smattering of the national picture in relation to the local one.

Distributor assignment of territories should be both geographical and so that dealers of like type and size are called on by the same salesman; he can know his prospects better that way.

The salesman should be a contributor and give at least one constructive suggestion on every call.

If the dealer wants something, the salesman should follow through and expedite it personally, whether it be a small part for a troublesome customer or a major order.

He should be a good listener and, if the dealer is an astute merchandiser, seek the dealer's suggestions.

about new developments. Fix only the really serious, chronic troubles the staffs of dealers can't handle. Repair major factory defects or reimburse the dealer with credits for extraordinary work he has to do. And have a good inventory of parts.

"Don't set up a service operation in competition with self-servicing dealers and independent contractors. It will save you money, will give you better dealer relations where they mean the most in strong franchises and sales, and will set a pace for your representatives."

Are You Guilty?

Other criticisms made of their distributors were:

Forgetting the sale after the dealer has the merchandise.

Back-door selling.

Overstocking dealers.

Not maintaining sufficient inventory.

Being excessively dictatorial.

Lack of interest in dealer.

Lack of enthusiasm for product.

In his survey, Farr said, he also asked the dealers to list the nicest things they could say about their distributors. "They like the distributors who have given them the impression and some tangible evidence that they're trying to keep the dealer in business. They were generally pleased with the nature and extent of promotional assistance given them by distributors."

One filled in this portion of the questionnaire with, "They're making money."

"Your salesman, in the eyes of most of your dealers, is you," he concluded. "You want, deserve and, mainly, need the best possible personal representation you could have today. Go to work improving the calibre of that representation. Nothing you could do would have greater value to the industry today."

Westinghouse To Take Radio, TV Audiences on Convention Hall Tour

CHICAGO—Radio and television audiences will get a half-hour "tour" of the convention hall at Chicago on Sunday afternoon, July 6, it was announced recently by Westinghouse Electric Corp., which is sponsoring coverage of the conventions next month over the Columbia Broadcasting System.

J. M. McKibbin, vice president in charge of Westinghouse consumer products, said the program will be simulcast over 43 TV stations and 195 radio stations on CBS.

CBS's crack corps of commentators will describe the lavish convention layout, while a battery of television cameras scan every corner of the building.

The preview will serve not only as an orientation period for the radio-television audience, but also as a dress rehearsal for the largest CBS news crew ever assembled to cover a single event.

Work is under way at the International Amphitheater, convention headquarters, to provide "all the comforts of home."

Feature of the renovation program is a new air conditioning unit that will keep the temperatures, if not the tempers, of delegates at a comfortably low point.

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BIG CAPACITY CASE BTC's
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(Model DC-16.) Available
with or without superstructure.

They felt also that many distributors render too much of the wrong kind of service. "The essence of the dealer response," he reported, "was the distributor should have a really crackerjack service authority to help keep service staffs of dealers and contractors well trained and informed

No other make has so many sales-winning advantages . . .

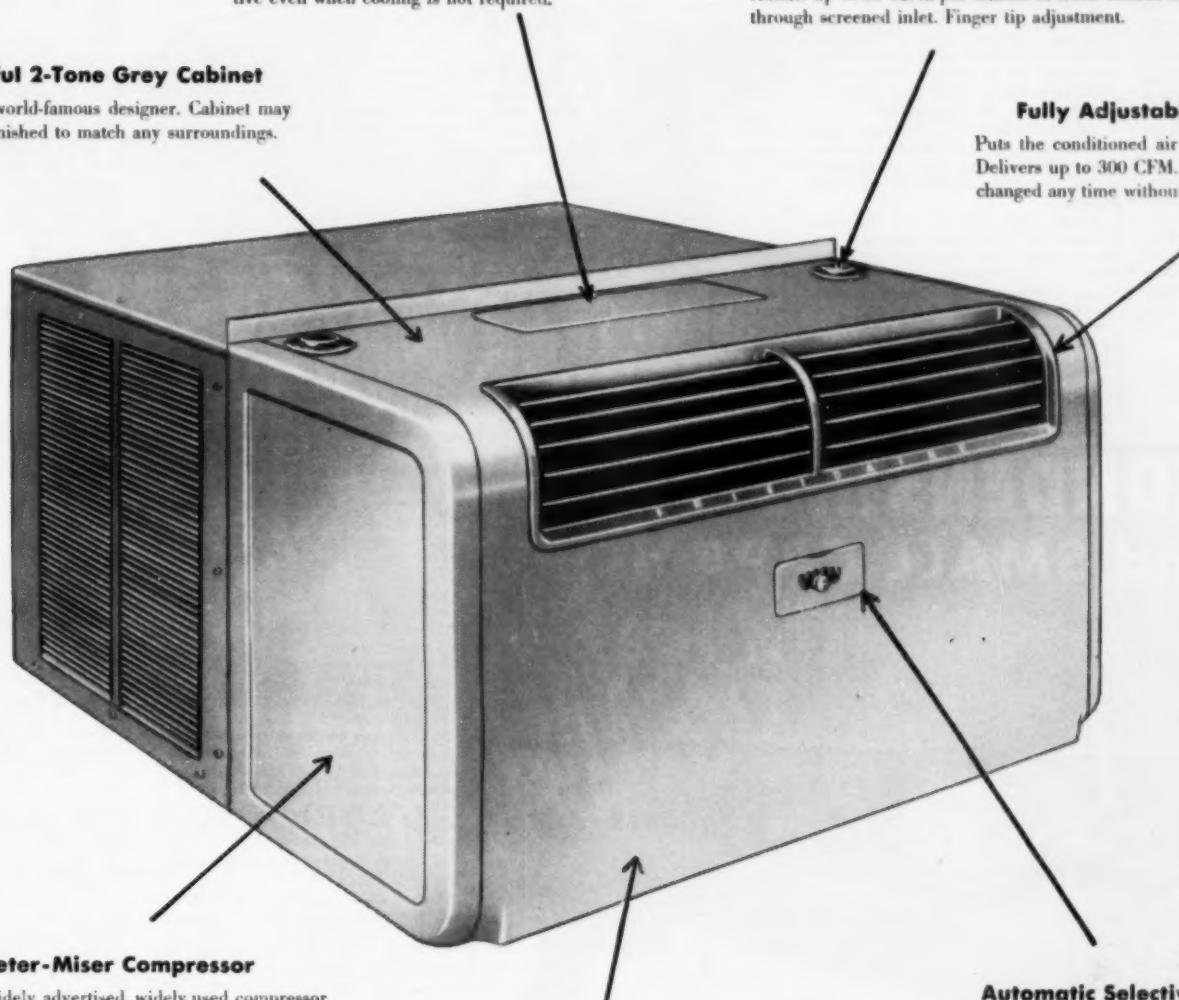
Frigidaire Room Air Conditioners

Exhaust Air Control

Quickly dissipates smoke, odors and stale air. Effective even when cooling is not required.

Beautiful 2-Tone Grey Cabinet

Styled by a world-famous designer. Cabinet may be easily refinished to match any surroundings.



Meter-Miser Compressor

The most widely advertised, widely used compressor in the world. It's the simplest refrigerating mechanism ever built, with a record of almost 20 years of successful application.

5-Year Protection Plan

On sealed-in Meter-Miser unit. One-year warranty on other parts. Backed by General Motors.

Easy Installation

Sturdy separate mounting frame clamps to window sill, cuts down installation time. Unit cannot tip, and may be left in window the year round.

Fibrous-Glass Filter

Throw-away type, stops dust, dirt and pollen. Easily replaced, popular make can be obtained almost anywhere. Efficient, long-lasting.

Maximum Comfort

Performs every function of true air conditioning—cooling, drying, filtering, circulating and ventilating.

No Water, No Plumbing

Condensed moisture automatically eliminated to outside air. Simple plug-in connections with provision for a variety of electrical current characteristics.

Fresh Air Control

Admits up to 50 cu. ft. per minute of fresh outside air through screened inlet. Finger tip adjustment.

Fully Adjustable Air Flow

Puts the conditioned air where you want it. Delivers up to 300 CFM. Adjustment may be changed any time without tools.

Automatic Selective Cooling

Ideal thermostatic control. The only full-economy variable-capacity window unit on the market. Manual selective cooling model also available.

Low Operating Cost

As little as 10¢ per day for $\frac{1}{2}$ -h.p. unit based on 2¢ per Kwh. Other models comparably low.

3 Accurately Rated Models

Include $\frac{1}{2}$ and 1-h. p. sizes for rooms from 150 to 500 square feet. And all ratings are conservative.

...and here's what the Frigidaire Name means in air conditioning!



Frigidaire built the first mechanical room conditioner in the industry almost 25 years ago. Today Frigidaire is not only a leader in the industry, but the world's largest builder of railroad air conditioning. The majority of America's "name trains" have Frigidaire Air Conditioning Equipment. Frigidaire developed and introduced the first self-

contained store-type conditioner America ever saw. Frigidaire developed Freon, the safe refrigerant which made self-contained air conditioners possible. And Frigidaire Dealers today have the most complete line of refrigeration and air conditioning products in the industry . . . more proof of the value of the Frigidaire franchise.

Frigidaire Dealers offer their customers so much more!

Summer Marts Roundup--

(Concluded from Page 1, Column 5)
refrigeration system and a one-year warranty on the cabinet.

Deepfreeze showed the first models of an upright hood freezer, an 11-cu. ft. (plus) model which is distinguished by shelves in the door (said to hold temperatures only 2° F. higher than in the main storage compartment), and including a number of other convenience features. Shipments on the Deepfreeze upright freezer will probably begin in July.

Kelvinator brought out a "stripped" chest-type home freezer model, 12.9-cu. ft. capacity, to retail at \$399.95. This model lacked baskets, lights, and other features but has a lock.

A complete new line of home freezers was shown by Victor Products Corp. All chest models, they include 8, 10, 14, 19, 21.5, and 30-cu. ft. models. All but the "stripped" 8-cu. ft. model, which retails at \$289.95, have what Victor calls a "completely equipped interior" which includes five containers for leftover foods in a specially designed basket; removable deep storage basket; ice cube tray with shallow utility basket; adjustable dividers; automatic light, built-in lock; and an alarm system with every cabinet.

Freezer Div. of Ryan Industries, a newcomer among exhibitors at the markets, exhibited its Freeze-Pantry and American upright freezers, which it introduced a short while ago (previously described in AIR CONDITIONING & REFRIGERATION NEWS).

Recently introduced new freezer models were being shown by Schaefer at its space in the American Furniture Mart.

New clothes dryers were shown by Dutchmen Appliance Mfg. Co., Odin Mfg. Co., and The Blitzen Corp.

Spotlighted in the Hotpoint display was its new "Quikonec" automatic electric dishwasher, so named because it is easy to install. The drain line from the "Quikonec" model swings left or right and can go through an opening on either side of the dishwasher cabinet. An automatic pump pumps waste water to the drain.

There were rumors that Frigidaire would introduce its clothes drier of new design at the marts, but it was learned that the new model is being shown to dealers later this month.

General Electric is starting shipments of a new fully automatic deluxe washing machine with a list price of \$349.95. The model AEW-5B4 continues in the line at \$299.95. Features include a new low voltage ejector plug which ejects the electric cord plug when voltage drops below required levels; a small load selector; interior light, and hinged lid.

Among special promotions was Admiral's offer of three Armour canned ham with any refrigerator model purchased within a specified period.

Norge was offering the Colonial canister set of Pyrex canisters for flour, sugar, etc., together with 50 lbs. of "All" detergent, with the Norge conventional washer model CW-232.

Westinghouse was placing emphasis on its new "trade-in center" plan for dealers, and was building its promotion around its TV coverage of the national political party conventions.



George F. Hessler (center) was elected NAED president. Hessler is shown with L. E. Barrett, (left), who was elected vice president and chairman of the Apparatus and Supply Div., and Benjamin Gross, re-elected vice president and chairman of the Appliance Div.

trade agreements, Sunbeam signed up 154,000 retailers including 102 of 106 large department stores.

He revealed that when Macy's started cutting prices on Sunbeam products last summer, that store captured 33% of Mixmaster business in New York where before the war it did 3% of the business.

In 1951, total Sunbeam business in New York declined 17% while nationally, it declined 7%. This is further proof, Graham said, that business is done by means of the goodwill of the mass multitude of small, average, normal dealers and not with the marginal operators.

At the general session, George F. Hessler, vice president of Graybar Electric Co., was presented with the Distributors Medal, James H. McGraw Award for Electrical Men "in recognition of his constructive contribution toward coordinating the essential functions of the electrical distribution industry with the needs of government during the current national emergency."

The presentation was made by W. T. Stuart, secretary of the committee of awards.

Hessler was also elected president of the NAED for the coming year. Benjamin Gross was re-elected vice president and chairman of the appliance division while L. E. Barrett of St. Louis was named vice president and chairman of the apparatus division.

NAED Hears Appliance Outlook--

(Concluded from Page 1, Column 3)
new usages, new services of the modern refrigerator should, I think, be the items to stress in creating real replacement business."

Elasha Gray II, president of Whirlpool Corp., declared that the laundry equipment business is ready to move to the forefront in the white goods field. He predicted that home laundry equipment will "soon lead refrigerators in dollar sales."

He explained: "While refrigerators are 87% saturated, automatic washers are just reaching the 15% point and they have steadily risen in the percentage of total washer production. We can look for them to keep on going and reach 2,500,000 units per year in the next five years and 3,300,000 units in 10 years."

As for dryers, Gray said that the market is only 22% saturated. "No appliance in the history of the white goods industry has caught the customer's fancy as quickly and dra-

matically. I believe dryers are a natural and will ultimately sell almost even with automatic washers with an annual volume of 2,000,000 units in the reasonably near future."

He concluded: "The market is eager to accept laundry products, relatively, in preference to other lines. Statistics show a market potential greatly in our favor and we have generally an adequate supply of quality merchandise to distribute to that market."

Herbert Laube, president of Remington Corp., put in the bid for top position in the major appliance field for the room cooler segment of the air conditioning industry. He said that in a short time it could be expected to top the white goods field.

GROSS CALLS FOR END OF MALPRACTICES

Ben Gross, chairman of the association's appliance division, called for a complete re-examination of production and merchandising practices in order to eliminate existing malpractices that have brought "chaotic conditions" to the appliance business.

Gross posed a number of questions that highlighted situations crying for remedies, which, he declared, "are in the hands of all of us. It is anything but a hopeless situation," he asserted, "if we begin applying corrective."

"Hasn't the associated distributor plan been responsible for creating a basic price discrimination for any given branded product," he asked, urging its elimination.

Another question brought out that the time has come to reconsider the business wisdom of using factory branches and factory subsidiary companies to grant undue concessions in prices on regular merchandise, as well as terms, advertising funds, and promotions, for the purpose of gaining undue market advantages over competitors.

Gross urged appliance distributors to recognize their "moral responsibility" to build business in their own operating areas by stimulating the sales efforts of their own dealers and asked that manufacturers "protect" such efforts.

He suggested that a rational basis be established by manufacturers for the true expectancy of sales of their products in each marketing area.

IMPROVING DISTRIBUTOR SALESMEN

Mort Farr, president of the National Appliance and Radio-TV Dealers Association, asserted that "nothing could be of greater value to the industry today than improvement in the calibre of distributor salesmen." Distributor salesmen, he declared, are the "last of the order takers."

Alex M. Lewyt, president of Lewyt Corp., told the distributors that "to move products you must first move people—and that is exactly what a good show will do."

He said that "showmanship will stimulate Mrs. Homemaker's desire for our appliances in such a way as to get her to buy right now."

URGE DISBANDING OF OPS

At the end of its general session, the NAED adopted two resolutions. One declared in favor of fair trade legislation and the other urged the disbanding of the Office of Price Stabilization "until there is a definite need for its reactivation."

Later, A. B. Graham, president of Sunbeam Corp., urged the distributors to take direct action to help get the legislation passed before Congress adjourns. He suggested that on their way home from the convention, they detour by way of Washington, D. C. and talk to their Congressmen personally. If they are unable to do that, they should telephone or write letters to them.

Graham reported that when the Supreme Court ruled a year ago that non-signers were not bound by fair

Hotpoint Staff--

(Concluded from Page 1, Column 2)
of sales administration, both in the field and at the factory.

Eugene E. McEwan, who for the last year has held an administrative post in the company's defense business, becomes manager of marketing planning. The newly created position includes market research, factory and field inventory planning, product scheduling, distributor and dealer organization analysis, and long range marketing planning.

McEwan joined Hotpoint following World War II, with a background in the appliance industry extending back to 1926. Previous to the Hotpoint defense post, he held various positions in marketing management for the company.

James M. McKinnie, formerly assistant to the sales manager, has been named assistant sales manager. William C. Bartels, sales promotion manager, becomes assistant to William E. Macke, merchandising manager. Lee DiAngelo, assistant sales promotion manager, becomes sales promotion manager.

Tim H. David, project coordinator in the defense business, has been named manager of product planning. He replaces John F. Carroll, who will take over responsibility for scheduling and planning refrigerator model introductions.

In reviewing the changes, McDaniel said that a major aim of the new alignment is to bring about closer contact with retail movement so that selling activities can be adjusted to meet competitive conditions.

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We've told you, but you don't have to take our word for it. Sales prove it. Satisfied owners prove it...and they're passing the good word along to their

friends. The Norge Time-Line Automatic is a real gold mine for dealers. Promote it, demonstrate it...and watch your sales curve CLIMB!

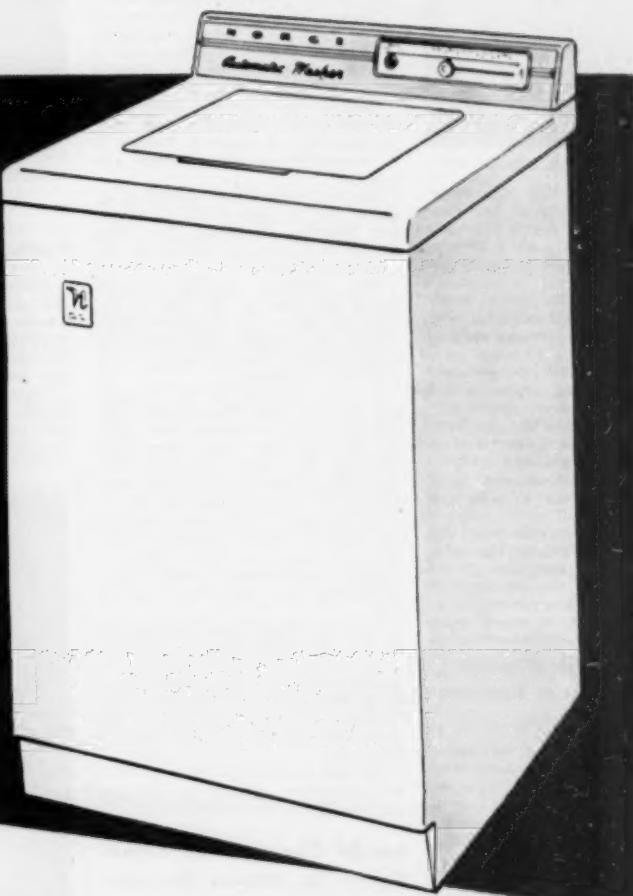
**This Norge invites comparison on every count
... LOOKS ... PERFORMANCE ... PRICE**

Washes better—Gets clothes cleaner, by actual test, than any other washer known!

Rinses better—Five warm rinses including agitated overflow and mist-spin spray, yet it uses less hot water!

Dries better—Clothes come out fluffy, almost dry—but there's no tangling!

Sells better—From its sleek, modern lines to its streamlined price, the Norge Time-Line Automatic Washer gives women what they want. Completely automatic from fill to finish—yet the amazing Time-Line control lets women wash their way, vary washing cycle at a finger-touch.



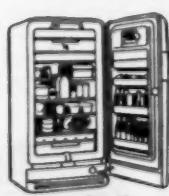
**See the entire NORGE line
at the SUMMER MARKET**

June 16 through 26

Furniture Mart • Space 522

Merchandise Mart • Space 234

**Everything NORGE makes NORGE makes right...
and NORGE offers you a full appliance line!**



DSD-86
Refrigerators
8 models



HF-150
Home Freezers
3 models



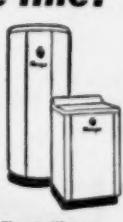
CW-250 PT
Wringer Washers
8 models



E-48
Electric Ranges
6 models



N-20 CP
Gas Ranges
9 models



N-22
Electric Water
Heaters
12 to 82 gallons

Top values—from Jet Self-D-Frosters (see model illustrated)—to deluxe-equipped model \$10 retailing at only \$269.95

A size for every family, with new convenience-features, and real dependability—backed by Norge's 5-Year Protection Plan.

All with famous Norge Triple-Action—from deluxe CW-250 PT with pump and timer to big-buy CW-220 retailing at just \$99.88

Featuring 2 deluxe models—from family-size N-3A at \$99.88 retail to deluxe N-20 CP with exclusive Pick-a-Pan cabinet lights that show all 7 heat speeds.

A model for every budget—from family-size N-3A at \$99.88 retail to deluxe N-20 CP with exclusive Pick-a-Pan cabinet lights that show all 7 heat speeds.

Vertical and Table Top models with Norge direct-projection elements that heat water faster, cheaper. 10-Year Protection Plan.

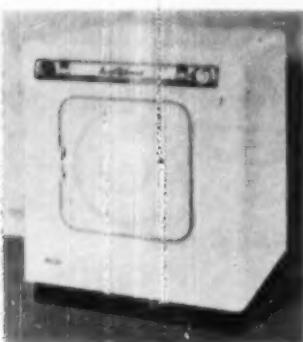
NORGE

*...the line that pays off
for the dealer!*

What Was New

At the Summer Marts

Odin Beautydryer Sucks Water Out of Clothes



KEY NO. B-648

The Odin Stove Mfg. Co. introduced its Beautydryer at the June Furniture Market. The new appliance is the counterpart of Odin's Beauty-range and is available in both gas and electric models.

According to E. C. Fisher, president of Odin, the Beautydryer embodies a number of features such as the following:

The Lovell humidity-temperature control of the drying cycle; suction air intake; larger air circulation; fast rate of evaporation; positive, automobile-type sparkplug ignition for gas models; overhead, radiant heating; larger front opening; large lint trap with safety by-pass and automatic reset.

The temperature control of the drying cycle operates on the principle that, as the humidity of the air decreases, the temperature increases until the desired degree of dryness is attained, at which point

G-E Automatic Washer Cleans Synthetic Fabrics

KEY NO. B-649

A new, deluxe, fully automatic washing machine has been announced by the General Electric Co.'s major appliance division.

C. E. Anderson, general manager of the home laundry equipment department, said the new washer operates on the same agitator principle as earlier models and has special control flexibility to permit the washing of synthetic fabrics such as Oynel, Orion, Dacron, and nylon.

The washer, designated AW-5B8, is a top-loading, free-standing machine with a hinged loading lid instead of the removable lid of former models.

Once started, the machine will automatically wash, rinse, and spin-dry up to 9 lbs. of assorted dry clothes, then shut itself off. The full load requires 17 gals. of water, but a small-load selector permits washing of loads weighing 5 lbs. or less in only 10 gals. of water.

Complete flexibility in cycle selection for the washing of special fabrics is provided by a simple push-pull switch. Once stopped, the machine can be re-started at the exact moment of cycle interruption, or it can be made to repeat or skip any stage within the cycle.

This feature also makes it possible to add "forgotten" pieces to the load, and permits long soaking of heavily soiled articles.

No bolting or reinforced floors are necessary for the installation of this washer. Three heavy springs cushion the frame to reduce vibration to a minimum. The washer also comes equipped with three lengths of sturdy rubber, high-pressure hose for hot and cold water connections and for use as a drain lead.

The machine is loaded and unloaded through the top. The washer body is finished in white baked enamel and the hinged top has a double-coated porcelain finish.

An interior light and a white porcelain wash basket makes it easy to locate small pieces that, otherwise, might be overlooked in unloading.

For protection, a one-year warranty applies to the entire washer, while the sealed-in transmission is warranted for an additional four years.

The manufacturer's recommended retail price for the AW-5B8 is \$349.95.

the drying cycle automatically stops. Thus the clothes are not tumbled according to a fixed time but according to the needs of the particular load. This eliminates excessive tumbling which is harmful to fabrics, according to K. C. Hampel, Odin treasurer and general manager.

In the Beautydryer, air is introduced into the drum by suction rather than by the pressure method. Water is sucked out of the clothes and not blown out. This suction principle gives Beautydryer the fastest rate of evaporation in the industry, Hampel said.

Clothes dry quicker. And since there is no air pressure in the drum, no insulation is required. Neither is it necessary to seal seams and cracks.

The automobile-type sparkplug ignition for the gas model is simple and positive. Lighting the drier burner is as easy as turning on the ignition of a car.

The overhead heating element places the heat at the top of the drum. In case of an emergency stop, clothes are always away from the source of heat. This prevents the possibility of scorching.

A 16-in. opening in the cylinder and a very large door permit the easy removal of clothes after they are dry and fluffy. The extra large lint trap with safety by-pass eliminates fire hazard, should an overloaded lint trap clog the blower.

An automatic thermostat shuts off the heating element whenever temperature goes over 210°. When it cools, it automatically resets itself, eliminating the need for a service call.

The advertising and promotional activity accompanying the merchandising of the new product will be conducted along two lines, according to E. K. Hampel, sales manager. One campaign will be directed to the dealer and the other to the dealer's customers.

The Beautydryer will be sold direct and prices for both electric and gas are intended to be competitive.

Large Capacity In Small Space In Gibson Freezer



KEY NO. B-6410

Newest addition to the 1952 line of Gibson Refrigerator Co.'s home freezers is a big 14-cu. ft. model embodying new features and large capacity in a small floor space. Gibson Refrigerator Co., Greenville, Mich., has announced.

Outside dimensions are the same as those of earlier 10-cu. ft. and 13-cu. ft. models. The same size now features a full 14-cu. ft. frozen food space and quick freeze compartment.

The hermetically sealed unit and fan have been relocated to a bottom-end position, leaving the other end free for storage space.

Described as Gibson's "Diamond Jubilee Special Model 1492," the model has 11 cabinet features, including a counterbalanced lid, 4-in. thick insulation, inner door panel, a 3.27-cu. ft. quick freeze compartment, and a single dial control.

Other features include sub-zero freezing coils, a welded one-piece cabinet, a safety lock, and well-designed trim and handle.

Outside dimensions of the redesigned model measure 30.75 in. depth, 54.87 in. width, and 40.50 in. height. Yet the inside dimensions, due to ingenious use of materials and relocation of operating units, total slightly over 14 cu. ft.



KEY NO. B-6411-A

Upright Home Freezer Featured by Norge

An upright home freezer and a full-skirted conventional clothes washer with increased capacity were introduced by Norge Div., Borg-Warner Corp., at the Summer Furniture Market here.

Upright freezer design keeps all stored food within immediate and easy reach, according to H. L. Clary, vice president in charge of sales.

Quick contact freezing is possible,

he pointed out, because the top plate of the cabinet and three "Jet Freeze" shelves are fully refrigerated, the latter maintaining zero cold or lower on both sides. The upright position keeps all foods in closer contact with the freezing surfaces than is possible in chest-type cabinets, he said.

Clary said the Norge upright model VHF-1125 holds 400 lbs. of food in its more than 11-cu. ft. interior.

Three permanent, well-spaced shelves; two sliding baskets, each having a capacity of 22 lbs., equipped with nylon rollers; and one "Adjust-a-Shelf," provide convenient storage.

The "Adjust-a-Shelf" can be moved up or down to five different positions, or it can be removed altogether, giving

(Concluded on next page)



KEY NO. B-6411-B

RELY ON REYNOLDS

complete fabricating service for

ALUMINUM

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SHELVING



Consistently top quality aluminum shelving from Reynolds Aluminum Fabricating Service offers refrigerator engineers and sales executives an unequalled combination of economy, efficiency and sales appeal.

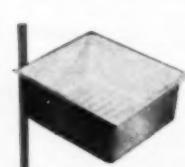
There's no substitute for the serviceability of rustproof, stainproof, light yet strong one-piece aluminum shelving... shelving color-anodized to your specifications in blue, gold or other attractive colors in a wide range of finishes by Reynolds Aluminum Fabricating Service. There's also no substitute for the experience and mass-production facilities offered by Reynolds Aluminum Fabricating Service.

Remember—for superior refrigerator shelving, as well as for the highest quality refrigerator and freezer parts shown below, rely on Reynolds Aluminum Fabricating Service. Reynolds will be glad to work with you on your present needs or on development work for future application. Contact your nearest Reynolds office listed under "Aluminum" in your classified telephone directory, or write Reynolds Metals Company, Parts Division, 2053 South Ninth Street, Louisville 1, Kentucky.



FREEZER LINER PANELS

Embossed, etched or anodized home freezer liner panels are produced by Reynolds. Panels are shipped flat with tubing brazed in position for fast assembly.



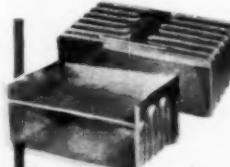
REFRIGERATOR PANS

Crisper pans in bright, anodized aluminum offer crack-proof, wear-resistant durability.



REFRIGERATOR TRAYS

Bottle, dairy, egg and utility trays are produced by Reynolds with color-anodized trim to manufacturer specifications.



REFRIGERATOR EVAPORATORS

Embossed and anodized refrigerator evaporators from Reynolds offer an unequalled combination of economy, serviceability and efficiency in rapid heat conduction.

(Concluded from preceding page)
ing a flexible shelf arrangement for various size packages and allowing extra clearance for bulky items.

The upright freezer occupies no more floor space than the modern Norge refrigerator it matches in exterior appearance. Lightweight, high density glass fiber insulation saves space and weight.

Condensation is minimized by an "air conditioned" door, another Norge exclusive. The door is equipped with a live rubber gasket to seal in the cold, and special provision is made to retard frosting at door opening.

Norge model VHF-1125, finished in easy-to-clean white Norgloss enamel, has the following exterior measurements: 30 $\frac{1}{2}$ in. wide, 61 $\frac{1}{2}$ in. high, and 26 $\frac{1}{2}$ in. deep. It is available at retail outlets throughout the country at approximately \$429.95.

The new washer designated model CW-232 retails at \$119.95. It has a capacity of 9 lbs. of dry clothes and the larger porcelain enamel tub holds 19 gals. of water to the water line and 22 gals. to the top.

Its new wringer has 2-in. balloon rolls and a pressure selector which is easy to adjust for various fabrics. The eight position wringer is controlled by a double safety interlock which prevents wringing while swinging or swinging while wringing.

As on all conventional washers manufactured by Norge, a large three-vane agitator produces triple washing action.

The new Norge is equipped with a gravity drain hose. A positive drain pump which empties the tub in two minutes is provided as extra equipment on model CW-232-P. The pump operates only when the tub is being emptied and it can never airlock.

Kelvinator 30-In. Range Has 'Extra-Large' Oven

—KEY NO. B-6412—

Introduction of a new 30-in. electric range model has given Kelvinator dealers an asset in the building of increased range business, says D. A. Packard, Kelvinator household sales manager.

"The new Kelvinator model ER-352 offers the homemaker automatic cooking and extra-large oven capacity in a deluxe range priced as low as stripped models of conventional design," Packard said. "Its suggested retail price is \$229.95.

"It requires a floor-space of only 30 in. by 24 $\frac{1}{4}$ in., saving kitchen area for other uses. Dimensions of the giant oven are 23 by 16 $\frac{1}{2}$ by 16 $\frac{1}{2}$ in. This is a whole roast wider than most conventional ovens."

Packard said the ER-352 oven is designed to provide more than 5,800 watts for pre-heating. It will pre-heat to 350° in less than five minutes. Surface units include one 8-in. and three 6-in. sizes; it is pointed out by Packard.

Other features include an electrical appliance outlet in the control panel, built-in top floodlight, and full-width sliding utensil drawer. Front, top, and sides are finished in acid-and-chip-resistant titanium porcelain enamel, the company says.

Packard said this new model also has: automatic pre-heat cutoff, built-in automatic clock and oven control, seven surface-unit heats, a method of construction that uses the giant oven as a structural member for added rigidity rather than as an insert in a bolted-together frame, an oven 373 cu. in. larger than comparable models currently available, removable broiler unit, recessed toe space at the bottom of the range, in addition to a unique heat-seal oven closure.

Promotion of the ER-352 will be built around the giant "Great Scot" oven—"great in size and scotch in thrift," it was further explained by Packard.



Deepfreeze Freezer Is Refrigerator's "Twin"

—KEY NO. B-6413—

An 11.3-cu. ft. upright home freezer designed and styled as an "identical twin" of the Deepfreeze refrigerator will be marketed nationally by the Deepfreeze Appliance Div. of Motor Products Corp.

When the new upright freezer is viewed from the front with the door closed, it looks exactly like a Deepfreeze refrigerator with its embossed door surface, bright escutcheon plate, and chrome-plated handle.

Inside, the freezer has five shelves with a total area of 15.3 sq. ft. The bottom shelf is equipped with a "push-pull" wire basket for storage of smaller packages. The inside of the door is equipped with three racks where 1.7 cu. ft. of food can be stored. The main freezer compartment stores 9.6 cu. ft.

Designed with a static condenser, each shelf acts as a "quick freezer" and speedily freezes food to 0° F. Condenser and refrigerant coils are placed on the underside of the shelves and are scarcely visible.

Temperature is controlled by a single dial, centered at the top of the freezer, which enables the user to set the freezer at 10 different levels of cold from -10° to 0°.

The cabinet of the new Deepfreeze upright freezer is constructed of one-piece wrap-around steel, welded and reinforced, and sealed against moisture. It is finished on the interior and exterior in white baked enamel. As in the Deepfreeze refrigerator, it has a floor-leveling device.

The full length door is also of one piece, heavy gauge steel. It is finished in white enamel on the outside and a cool, "metallized" green on the inside. The door rides on seamless, stain-less-steel-bearing hinges.

There is a moulded rubber gasket to insure positive door seal. The door is equipped with a chrome handle and a trigger-type, self-sealing door latch operating under 60 lbs. pressure. The breaker strip is of polystyrene. High density, heavy duty Fiberglas insulation is used.

The freezing unit is activated by a hermetically-sealed $\frac{1}{4}$ -hp., 60-cycle, single-phase motor. "Freon-22" refrigerant is employed. There is a one-year warranty on the freezer with an additional four-year warranty on the sealed-in mechanism. Access to the unit is through the front of the cabinet.

Cabinet height of the new Deepfreeze upright freezer is 61 in., width 30 $\frac{1}{2}$ in., and depth 24 $\frac{1}{2}$ in.

Boyd Distributes Norge Line In Denver Area

CHICAGO—Boyd Distributing Co., Inc., 20 West 13th St., Denver, has been named distributor for the Norge home appliance line in the Denver and surrounding area effective immediately, H. L. Clary, vice president in charge of sales for Norge Div., Borg-Warner Corp., announced recently.

The Boyd organization is headed by Cecil H. Boyd, president. Dr. Earl J. Boyd and Richard L. Brown are vice presidents, and Carl G. Hoffman is the company's general manager.

Distribution of Norge home appliances in the Denver area was formerly handled by McCollum-Law Corp.

Deepfreeze Names Ohio, New England Distributors

NORTH CHICAGO, Ill.—Appointment of two new distributors for Deepfreeze home freezers, refrigerators, ranges, and water heaters has been announced by Ben G. Sanderson, general sales manager of the Deepfreeze Appliance Div., Motor Products Corp.

Merchants Distributors, Inc., 1312 Boylston St., Boston, will now handle Deepfreeze distribution in eastern Massachusetts, eastern New Hampshire, and the state of Rhode Island. Max Katz is president and sales manager of the organization and A. H. Kessler is vice president.

Ohio Appliances, Inc., 241 North Fourth St., Columbus, Ohio, has been selected to distribute Deepfreeze products in 24 central and southeastern Ohio counties, Sanderson said. R. C. Euchenhofer is president of the firm, Edward L. Foster, vice president, and Jack W. Faul, advertising and sales manager.

G-E Names Oliphant To Marketing Post

LOUISVILLE, Ky.—The appointment of Howard A. Oliphant as manager of marketing for General Electric Co.'s range and water heater department has been announced by J. R. Poteat, general manager of the department.

Oliphant, who has been manager of sales for ranges since September, 1951, succeeds John F. McBride, whose appointment as manager of sales planning for the major appliance division was announced recently.

Oliphant graduated from the University of Kansas in 1934 with a B.S. degree in electrical engineering and joined G-E as a student engineer that same year. He entered appliance sales work two years later.

In 1938 he became Pacific district representative for range and water heaters with headquarters in San Francisco and returned to this job in 1945 after war-time service in G-E's apparatus department in San Francisco. He was appointed Seattle manager of appliance sales May 1, 1950.

Perfection Stove Sets Sales Record In First 5 Months

CLEVELAND—Although affected by the same unfavorable influences that have existed in the appliance industry during the first five months of this year, Perfection Stove Co. sales have been the best in the company's 64-year history.

Sales during the first five months of this year were larger than sales for any consecutive five months in the past 64 years, the company stated.

May, 1952, sales were considerably above April, 1952, and were more than 37% ahead of May, 1951.

Unfilled orders as of May 31 were the second highest in history, having been exceeded only by those of the period following the close of World War II.

New Orleans Outlet Opens

NEW ORLEANS—The Electric House, featuring Philco products and other appliances, has formally opened its new air conditioned store at 700 S. Carrollton. Ralph Miller is owner.



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INSIDE DOPE

by GEORGE F. TAUBENECK

(Concluded from Page 1, Column 1)

sorption for the new project—a suggested approach which proved unsuitable. Carrier turned to his familiar heat research apparatus.

But this time he pumped cold lake water instead of steam through the coils, measuring the temperature and relative humidity of air entering and leaving the coils at various coil temperatures to determine the cooling and dehumidifying effect. From his figures he designed a coil to meet operating specifications for the Brooklyn printer.

Design conditions were 80 degrees and 55 per cent relative humidity in summer and 70 degrees and 55 per cent relative humidity in winter. Cooling and dehumidification coils were arranged in two stages, the first stage using cool well water, and the second designed for direct expansion ammonia cooling. Total capacity of the system was 56 tons, with well water providing 26. In winter, moisture was added to the air under automatic control by means of perforated steam pipes. Complete air conditioning had become a fact for the first time.

Carrier's restless genius, stimulated by the challenge, pushed on to better ways of doing the job and to new applications. In 1904 he developed the spray-type apparatus, con-

ceived on a fog-shrouded railroad platform in Pittsburgh. It had occurred to him as he watched the drifting mist, that a man-made spray could be used to control the moisture content of the air, by adding or removing water according to the spray temperature.

In 1906 he installed the first central station humidification and humidity control system in the textile industry at Chronicle Mills, Belmont, N. C. During this installation he discovered that a constant dewpoint depression produced a constant relative humidity. And this led to further development of his idea for control of humidity through control of spray temperature.

That same year he filed a patent for his dewpoint control system. In this system, a thermostat was placed in the airstream leaving the spray chamber where the temperature of the air was also its dewpoint since the air was saturated. The thermostat varied spray temperature to obtain the desired dewpoint.

First automatic humidity control system using a constant dewpoint depression was installed at the Huguet Silk Mills, Wayland, N. Y., in 1907. Original apparatus for this first central station silk mill conditioning system is still in place in Wayland. In that same year, Parke Davis of Detroit obtained a Carrier design for cooling and dehumidifying a room where capsules were manufactured—the first air conditioning system for the pharmaceutical industry.

In 1908 air conditioning entered the chemical industry with an installation at the Celluloid Co., Newark, N. J., which manufactured celluloid film base for the infant moving picture industry. Their problem: mois-

ture condensed on the film base during evaporation of solvent, and produced the white specks so familiar to early movie-goers. A dehumidifier was used to lower the dewpoint of the air, preventing moisture condensation. Refrigeration for this system was supplied by York, which now is a major air conditioning manufacturer.

In 1910 the rayon industry—new to this country at the time—obtained an installation at American Viscose Co., Marcus Hook, Pa. In 1911 a pharmaceutical plant installation with a special new type of air distribution providing individual conditioning for each of a number of capsule-forming machines through a central station system was designed by Willis Carrier for Eli Lilly and Co., Indianapolis. A static pressure regulator was employed to maintain a constant flow of air when a portion of the machines were shut down. This installation is still in use.

Also in 1911, air conditioning entered the electrical manufacturing industry with an installation for the Bosch Magneto machine shop in Springfield, Mass. That same year it was introduced to the candy industry at the George Ziegler plant in Milwaukee, to the baking industry with an installation for the Colling Baking Co., Buffalo, N. Y., and to the laboratory field at the Thomas A. Edison, Inc., film processing rooms, Orange, N. J.

Probably more important than any other event of that year, however, was the unfolding of Willis Carrier's Rational Psychrometric Formulae, which have served ever since as a basis for air conditioning calculations. These formulae, presented in a paper before the American Society

of Mechanical Engineers, covered the principles of air conditioning. At this meeting, Carrier also presented another paper, which he and Frank L. Bussey of Buffalo Forge had co-authored, on the application and operation of air conditioning apparatus, thus detailing the practice as well as the theory.

The Citizens Telephone Co., Grand Rapids, became the first automatic telephone exchange to be air conditioned (1913). That year saw an early hospital air conditioning job, a premature baby ward in Allegheny General hospital, Pittsburgh. And one of the earliest ammunition industry installations was made in a time fuse loading room at Bethlehem Steel, South Bethlehem.

Buffalo Forge, Carrier's employer through those early years, set up the Carrier Air Conditioning Co. of America in 1908 as a subsidiary to handle air conditioning contracts. J. Irvin Lyle, New York manager for Buffalo Forge, who had brought the original Sackett-Wilhelms job to Willis Carrier, was the first president of this new company.

In 1915, with the war spreading in Europe, Buffalo Forge decided to consolidate its operations by cutting back on activities in this field. Carrier, Lyle, and five close associates struck out on their own by establishing the Carrier Engineering Corp., an independent company.

Other members of this original group of founders were Edmund P. Heckel, L. Logan Lewis, Ernest T. Lyle, Edward T. Murphy, and Alfred E. Stacey, Jr. The new company subsequently became Carrier Corp. Mr. Carrier served as president from 1915 to 1930 when he became chairman of the board. Lyle was named president at that time and served until his death in 1942. Two of the founders, Lewis and Stacey, are still active members of the firm.

The first ASHVE Guide published in 1922 listed three air conditioning companies: Carrier Engineering, the Atmospheric Conditioning Corp., a Carrier subsidiary, and W. L. Fleischer and Company, Inc., which installed B. F. Sturtevant equipment. However, there were other firms, well-known in the industry today, identified with many early installations as contractors or as suppliers of such components as fans, heaters, and refrigerating machines.

Among them, in addition to Buffalo Forge and York, were American Blower, Vilter, and Frick. Refrigeration for a 1911 blast furnace air dehumidifying system designed by Carrier was supplied by the Carbon-dale Machine Co., which, in 1934, became a part of Worthington Pump and Machinery Corp.—another important air conditioning manufacturer.

Although comfort, health, and human efficiency had been a primary incentive of many of the early temperature control experiments, air conditioning during the first 20 years of its life was applied mainly to industrial tasks. Of the few comfort installations, the Congress hotel in Chicago air conditioned one of its large dining rooms with a Carrier system in 1911. In 1912, what was probably the first residential system was installed in a Minneapolis mansion built by Charles G. Gates, son of John W. "Bet a Million" Gates. The system was never used—Gates died before the house was completed.

The principal drawback on comfort installations was lack of suitable refrigerants. Those in use at the time were ammonia, which was toxic, and carbon dioxide, which required high pressures and massive equipment. Grauman's Metropolitan Theater in Los Angeles—first theater to use the new downdraft by-pass system patented by L. Logan Lewis—employed carbon dioxide refrigeration when the system was installed in late 1922.

In that same year, Willis Carrier developed the centrifugal compressor, which was the first refrigerating machine of any kind to employ a low-pressure, relatively non-toxic refrigerant.

The initial machine, built for experimental purposes, was later obtained by Onondaga Pottery Company, Syracuse, N. Y., where it is still in perfect operating condition. Of the first four machines to be sold, one went to William F. Schrafft and Sons, Boston, and three to Stephen F. Whitman and Sons, Inc., Philadelphia, both candy manufacturers and pioneer users of air conditioning.

By this time the comfort field had opened up interestingly. In 1924 three early centrifugals were purchased to cool portions of the massive J. L. Hudson Co. department store, Detroit,

which is now completely air conditioned with 11 centrifugals. Same year a similar machine was used for air conditioning systems in the Texan and Iris Theaters in Houston. In 1925 the Rivoli, using centrifugal refrigeration, became New York's first air conditioned theater. Also in that year, the new Madison Square Garden obtained three centrifugals to supply refrigeration for both air conditioning and freezing the ice rink. In 1927, an air conditioning system was designed for the Roxy Theater, largest in the world at that time with some 6,000 seats. In 1928 the 21-story Milam building in San Antonio, Texas, employing centrifugal refrigeration, opened for business as what was probably the country's first completely air conditioned skyscraper.

A second great advance in refrigeration came in 1930 with the development of "Freon-12." This new refrigerant was the tailor-made result of a research project initiated by Charles Kettering of General Motors, and staffed by a team of General Motors and du Pont scientists, headed by Dr. Thomas Midgley, Jr., and Dr. Albert L. Henne, both of General Motors.

"Freon-12" was the first non-toxic, non-flammable refrigerant suitable for small capacity refrigeration as well as for larger systems. The rise of the packaged unit—first developed at about that period—was on its way. Kinetic Chemicals, Inc., now a division of du Pont, was set up by the two companies to manufacture the refrigerant commercially.

Other advances and new applications were coming. In 1932 the first steam ejector refrigeration unit for railway car conditioning systems was installed on the Atchison, Topeka and Santa Fe. At about that time Willis Carrier, while investigating the possibilities of "Freon-12," became interested in a fluid obtained as one step of the process—now known as "Freon-11" or Carrene 2—which he patented as a refrigerant for centrifugal compressors. In 1935 the centrifugal was applied for the first time to ammonia condensing, an application which has seen wide service in breweries and meat-packing plants.

Willis Carrier died on Oct. 7, 1950, a little less than two years before the air conditioning business celebrates its fiftieth birthday. But he had lived to see the day when virtually every large multi-story office building and hotel would include air conditioning in its plans, when aggressive merchants would consider it unwise in most cases to open a new department or clothing store or remodel an old one without air conditioning, when hospital air conditioning—not only of premature baby wards and operating rooms but also of patients' rooms would become a commonplace measure directed at improving the health, safety, and recovery rate of patients, when the crack transatlantic vessels of the United States Lines fleet were completely air conditioned, along with thousands of buses and railroad cars and even a substantial number of airliners, when it would be difficult to find a city or town throughout the entire country which did not have its quota of air conditioned theaters, restaurants, banks, bakeries, beauty and barber shops, food, drug, shoe, furniture, variety, and other stores, funeral parlors, and flower shops.

He lived to see widespread air conditioning as an essential part of processing or efficient production in such diverse industries as textiles, tobacco, pharmaceuticals, chemicals, candy, food processing and storage, printing, photography, precision machinery, and optical equipment.

It has been estimated that well over 3,000,000 tons of air conditioning capacity were in use in this country at the end of 1951. Furthermore, in recent years the air conditioning industry has entered its greatest period of growth.

Continued substantial growth is indicated for some years to come. One of the big frontiers is the residential market. Several manufacturers now are producing complete year-round units for homes. Room coolers are coming into vogue in a big way.

The best is yet to come.

Quotes of the Week

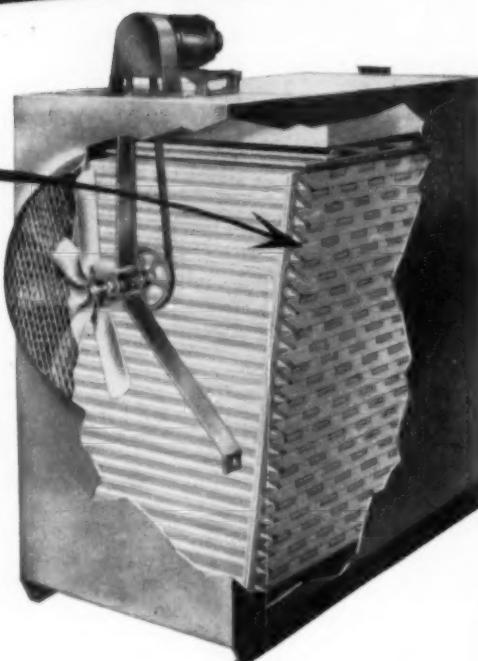
"Half the worry in the world is caused by people trying to make decisions before they have sufficient knowledge." —DEAN HAWKER.

"You take all the experience and judgment of men over 50 out of the world and there wouldn't be enough left to run it." —HENRY FORD.

HALSTEAD & MITCHELL COOLING TOWERS

20-Year Guarantee!

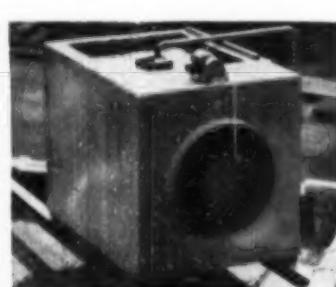
On the Wetted Deck Surface of Koppers Pressure-Treated Wood



HOUSING—10 gage (1 1/2") sheet-steel case with 3 coats Bitumastic lining. Electrically welded cabinet. All bolts used are Everdur for ease of disassembly after years of service.

WATER DISTRIBUTION—Gravity type distributing pan eliminates extra pumping head, cuts down windage losses, due to atomizing water.

FAN AND DRIVE—Quiet-operating stainless steel 8-bladed fan, stainless steel shaft, chrome-dipped rust-proof pulleys. Cast iron bearing supports. Adjustable belt tension.



MORE EFFICIENT IN ANY INSTALLATION

H&M # CT-4000 Induced-Draft Cooling Tower supplying the condensing water for 20 HP and 10 HP water-cooled condensing units in 3-story jewelry storeroom air conditioning. Note open-type distributing pan. This installation also has remote water basin in basement for year-round operation.

5 TONS to 50 TONS

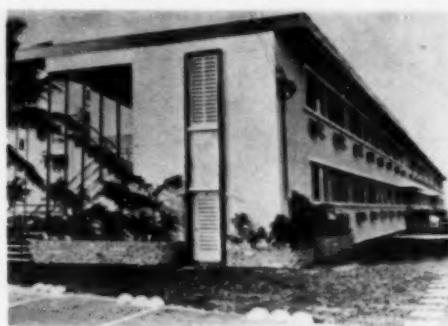
A cooling tower for all applications, from 5 to 50-ton capacities—made by Halstead & Mitchell, one of the world's largest manufacturers of water-cooled Cleanable Condensers.

AT LEADING WHOLESALERS EVERYWHERE

Write for descriptive bulletin and information on engineering help.

HM
Halstead & Mitchell

OFFICES: BESSEMER BUILDING • PITTSBURGH 22, PA.



HOT WINDS are tempered by 50 room air conditioners installed in one of Miami's new hotels. Each living area has a unit which can be individually controlled. Jalousie windows are left completely clear by the through-the-wall installation.

Through-the-Wall Installation of 50 Room Coolers Blends with Hotel's Modern Design

MIAMI BEACH, Fla.—Visitors to the recently opened Treasure Isle hotel, North Bay Causeway here, will have their sea breezes tempered by 50 Mitchell $\frac{1}{4}$ -hp. window-type air conditioners.

The air conditioners are placed unobtrusively in "through the wall" installations, leaving the jalousie glass windows completely clear. Each

living unit in the ultra-modern two-story building is equipped with its own air conditioner allowing individual weather control.

Installation was made under the direction of Herb M. Rose, Florida territory representative for Mitchell. According to Rose, the installation is "very typical of new Florida construction."

R. Dail Moore Heads Marketing Department For G-E Room Coolers

LOUISVILLE, Ky.—R. Dail Moore is now marketing manager of the General Electric room cooler department, according to Harold B. Donley who is general manager of the department.

The department recently was transferred from the air conditioning division at Bloomfield, N. J., to the major appliance division with headquarters at Louisville.

Manufacture of the room coolers will be continued at Bloomfield until production facilities become available at the new Appliance Park now under construction at Louisville.

Moore joined the company at Erie, Pa., in 1936 as a student engineer. He held a number of sales positions and in 1950 went to Bridgeport, Conn., as assistant manager of purchasing of the old appliance and merchandise department.

In April, 1951, he was named coordinator of the gas turbine parts section of the household refrigerator department and three months later in July was appointed assistant to the general manager of the jet engine parts department which is at Louisville.



Promote Room Air Conditioners as Aid to Better Living Through Better Health and Comfort

CHICAGO—"If you decide to go into the room air conditioner business, then to do the right sales job, you must equip yourself to know:

"1. Why a person is better off, both as to comfort and health, if he has an air conditioner.

"2. Why at this time there is no unit on the market that approaches the operating advantages of your product . . ."

That was the advice given by E. A. Tracey, vice president in charge of Mitchell Mfg. Co.'s Air Conditioning Div., while on a circuit tour among Mitchell dealers and distributors.

Tracey pointed out that sales of air conditioners are on the upward trend. The reason, he said, is two-fold:

"First, the product must sell within the price range of the mass American pocketbook. On that score, room air conditioners certainly qualify.

"Second, the product—to be great—must have an enormous potential

for use, many possible locations. For example, the radio business grew enormously when people began to have more than one set.

"In this respect, air conditioning also fits. The average home has one kitchen, two bedrooms, a living room, and a dining room. Any homemaker who buys one air conditioner becomes a perfect prospect for another."

Tracey also emphasized the health aspect of air conditioning as a public service point in selling. He said: "Explain the fact that air conditioning is an aid to better living through better health as well as comfort."

He noted that heat hurts the heart, decreases growth, and has even influenced the growth of civilization.

"Temperature has affected the physical and intellectual growth of mankind more than any other factor," Tracey declared. "The control of the matter of heat is now in the hands of man."

Fresh'n'd-Aire Begins Room Cooler Production

CHICAGO—Fresh'n'd-Aire Co., a division of Cory Corp., has begun turning out production models of the first two electric air conditioning units at its main Chicago plant.

The units, which have been extensively field tested during the past few months, will come in $\frac{1}{2}$ and $\frac{3}{4}$ -ton capacities, designated respectively as models 712 and 734.

The Fresh'n'd-Aire room air conditioners are enclosed in heavy-gauge Bonderized cabinets, finished in baked gray and cream enamel.

The model 712 will have a cooling capacity adequate for rooms up to approximately 300 sq. ft.; the model 734 will cool areas up to approximately 450 sq. ft.

Model 712 retail price will be \$349.95 including tax; the model 734 retail price will be \$399.95 including tax.

A 'Week's Free Trial' Is Key to Westinghouse Dehumidifier Promotion

MANSFIELD, Ohio—Geared to the theme, "Try before you buy," a sales program to merchandise the company's newest appliance—the dehumidifier—is now under way by the Westinghouse Electric Appliance Div.

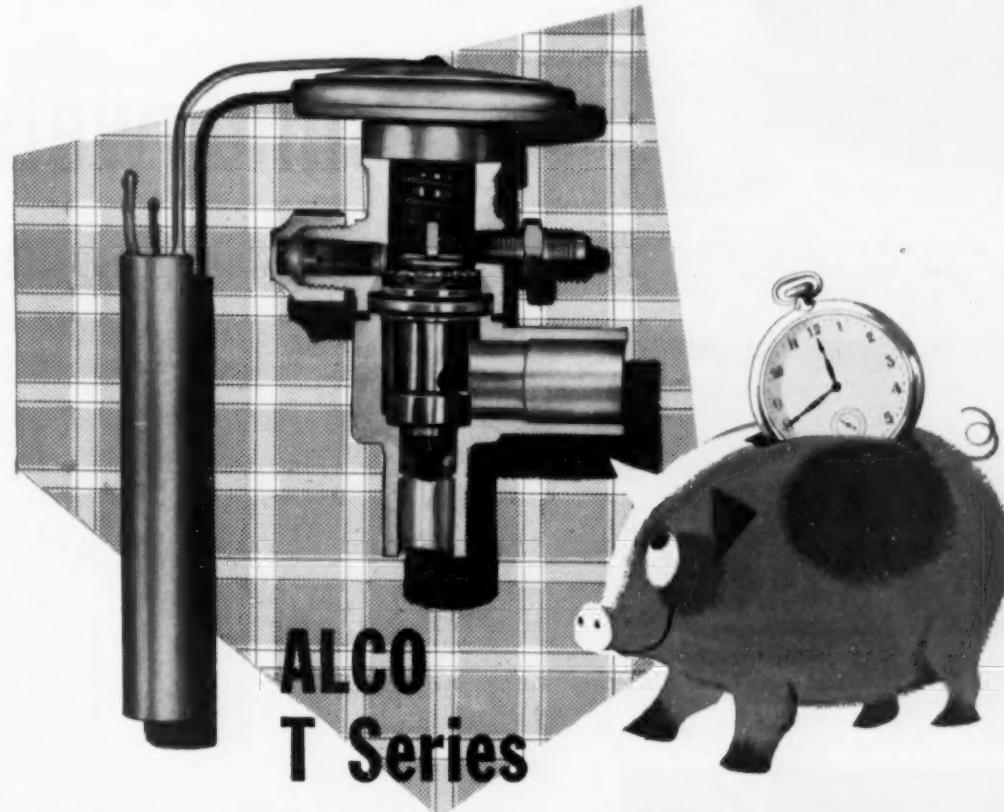
W. N. Abbott, merchandise manager for refrigeration specialties, said, a week's free trial in the customer's home or place of business "will prove that the dehumidifier is the answer to the moisture problem."

To aid the home trial theme, the Appliance Div. has designed attractive window and floor displays which tell the story of the offer and illustrate the effectiveness of the dehumidifier in solving the dampness problem.

Eye-catching direct mail cards showing the dehumidifier in a home setting which emphasizes the "good furniture" characteristics of the unit are being made available to all dealers for consumer distribution.

This sales program, which runs through Aug. 29, is part of the Westinghouse "Band Wagon" campaign highlighted by the company-sponsored CBS radio and TV coverage of both Republican and Democratic political conventions.

In addition to the political band wagon plan, there will be newspaper mats, ranging in size from 168 to 280 lines, radio spot announcements, specification sheets, and selling folders provided for dealer use. As an added incentive, dealers will be paid \$2 for each Westinghouse dehumidifier placed on a one-week free trial in a home or an office. However, the incentive will be paid only once on each individual unit regardless of the number of times it is let out.



EASY TO SERVICE ON THE LINE—remove two cap screws; lift off power assembly; take out the cage assembly. Now you're ready to inspect and clean the valve or replace parts.

EXTERNAL SUPERHEAT ADJUSTMENT—just remove seal cap on side of the valve and turn adjusting stem. It's that simple!

Available with internal or external equalizer. Capacity from $\frac{1}{2}$ to 50 tons "F-12". There is a T-Series Valve for all temperatures and all refrigerants.

For further details, send for Bulletin 171.

SEE YOUR ALCO WHOLESALER!



Designers and Manufacturers of Thermostatic Expansion Valves; Evaporator Pressure Regulators; Solenoid Valves; Float Valves; Float Switches.

ALCO VALVE CO.

853 KINGSLAND AVE. • ST. LOUIS 5, MO.

Products and Processes Shown at the ASRE Technical Research Exhibit, Atlanta



ENGINEERS EXAMINE the results of molding such plastic sheets as Dow's Styrene by a vacuum-forming process in a machine designed by Industrial Radiant Heat Corp.

(RIGHT) HIGH-SPEED vacuum forming with Dow Chemical's high impact Styrene sheets in an Industrial Radiant Heat Corp. machine arouses considerable interest.



EXPLANATION OF how electric motor winding temperature can be determined when the motor is running by measuring resistance rise is given to J. H. Marsh of Fusite by E. F. Kurtz of Spencer Thermistor as A. P. White prepares to throw the main switch.

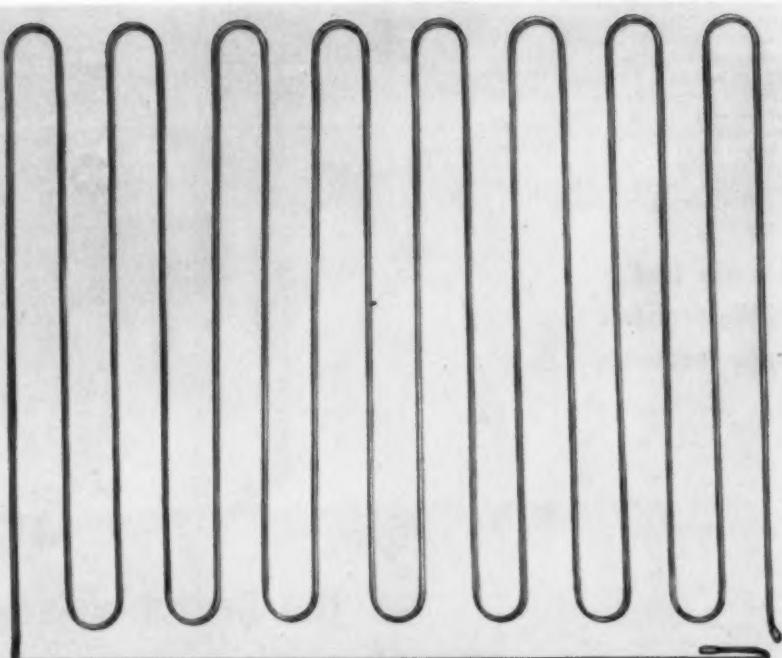


HOW THE NEW "Teflon" plastic finish can improve water run-off in such applications as evaporators for automatic defrosting is explained by O. J. Spahn of du Pont to Walter A. Kuenzli of Crosley.



HERMETIC TERMINAL made of steel fused in glass by Fusite Corp. gets a careful inspection in cutaway model of hermetic compressor by William Marshall, Toronto parts wholesaler.

Bundyweld gives you



TIME SAVINGS—Often, you'll find Bundy has already solved the problems your new tubing part presents, has machinery and methods right at hand for swinging into high-gear production. The plate condenser coil above, with nineteen bends and two expanded ends, is a complicated part to

mass-produce. Yet, with an assist from Bundy patented multiple-bending machines and Bundy ingenuity in combining expansion and auxiliary bending operations, this part is turned out swiftly, surely. Specify Bundyweld, and you take advantage of priceless engineering skill and experience.

Bundyweld Tubing

DOUBLE-WALLED FROM A SINGLE STRIP

WHY BUNDYWELD IS BETTER TUBING



Bundyweld starts as a single strip of two or more layers of copper-coated steel. Then it's continuously rolled into a tube of uniform thickness, and passed through a furnace. Copper coating fuses with steel. Result . . .

Bundyweld, double-walled and braised through 360° of wall contact.



NOTE the exclusive patented Bundyweld beveled edge, which afford a smoother joint, absence of bead and less chance for any leakage.

Get a jewel...the new No. 156 SPRING and SUMMER HARRY ALTER'S DEPENDABOOK

REFRIGERATION Parts & Supplies plus TELEVISION • RADIO • HEATING ELECTRIC MOTOR PARTS AIR CONDITIONING

Write for your copy NOW!

Service doesn't follow when it comes from Harry Alter.

1728 S. Michigan Ave., Chicago 16, Ill.
134 Lafayette St., New York 13, N.Y.

Bundy Tubing Distributors and Representatives: Cambridge 42, Mass.; Austin-Hastings Co., Inc., 226 Binney St. • Chattanooga 2, Tenn.; Peiron-Deakins Co., 823-824 Chattanooga Bank Bldg. • Chicago 22, Ill.; Lapham-Hickey Co., 3133 W. 47th Place • Elizabeth, New Jersey; A. B. Murray Co., Inc., Post Office Box 476 • Philadelphia 3, Penn.; Eaton & Co., 1717 Sansom St. • San Francisco 10, Calif.; Pacific Metals Co., Ltd., 3100 19th St. • Toronto, Ontario, Canada; Alloy Metal Sales, Ltd., 181 Fleet St., East • Bundyweld nickel and Monel tubing is sold by distributors of nickel and nickel alloys in principal cities.



SALESMAN EXPLAINING use of appliances in one of five model kitchens on sales floor of Kitchen Center, Washington, D. C.



KITCHEN PLANNING DEPARTMENT is separated from rest of sales floor by a transparent glass partition so that visitors can see it and learn how the department operates.

Kitchen Planning Center

Dealer Displays Appliances as Model Kitchen Units To Help Customer Visualize Her Own Setup; Result—More Packaged Deals Are Sold

WASHINGTON, D. C.—The display of several model kitchens on an attractive sales floor can better help a housewife visualize how the setup will appear in her own home.

This realistic approach not only helps move complete packaged sets, but stimulates interest in single appliance units.

Acting on this psychological appeal, the Kitchen Center here has arranged five model kitchen ensembles in its spacious showroom, each of varied materials and colors so they will draw a favorable reaction from practically any type of customer.

The immediate impression of a

visitor is that he or she is entering an exclusive kitchen outfitting concern and thus will receive better advice and have a wider assortment to select from than the average store.

The sales floor, measuring 80 ft. by 40 ft., is lined at the sides with the model kitchen units. In the center is a mass display, the merchandise being segregated into popular samples of home freezers, refrigerators, cabinets, and so on.

A large U-shaped model arrangement on the left as one enters features white metal cabinets. On the other side is one with built-in counter-top electric range and built-in oven. Other sets are built around

wood and maple cabinets. The fifth features a varied assortment of colors.

Upstairs this model display idea is further carried out, but on a much larger scale. The model kitchen here is on a stage in front of 75 to 100 portable seats for the convenience of groups watching demonstrations. All the upstairs units, including even laundry equipment, are hooked up and in operation to facilitate visual display.

Because of this arrangement, the store can invite women's clubs and civic groups to see and hear cooking school shows, or get advice from a kitchen authority who can use the

equipment on hand to illustrate a lecture.

Integrated with this showmanship is a kitchen-designing service through which the store undertakes to do a complete job—from planning and designing to the furnishing and installing of the kitchen.

The custom-planning facility includes flooring, ceiling, tile work, electricity, and plumbing, with the painting and floor laying operations farmed out to subcontractors.

The planning department is located in a 6-ft. by 12-ft. room in the rear of the store. It is partitioned off from the rest of the sales floor by transparent glass so that visitors can easily see the draftsman working over his board. The walls are lined with type sheet specification blueprints and architects' designs. There are chairs and tables for consultation with customers.

Interior decorations and color scheme of the showroom have all been designed to emphasize buy appeal. The tile walls, overhead rows of fluorescent lights, and large photographic murals of model installations are all in keeping with the merchandise sold.

All-Glass Front Leads Customers In

The all-glass front of the modern building, occupied exclusively by the dealer, helps attract considerable walk-in and drive-in business. Since the store is located at 1715 Rhode Island Ave., N. E., which is quite some distance from the main shopping center, much reliance is placed on the exterior appearance in drawing trade.

There are no adjacent structures to mar the view, so the store stands out prominently. And the glass front permits a clear view of the interior from the street. Window displays are keyed to seasonal merchandise and current promotional themes, and are changed frequently.

Another strong asset is plenty of free parking space.

A vigorous, continuous promotion campaign is carried on. All types of media are used to obtain leads for the outside salesmen. This eliminates the wasting of time on cold canvassing.

Newspaper advertising is concentrated on the planning and installing of a custom-made kitchen. At least one small ad a day goes in all four local papers, and a larger one in the Sunday editions.

Copys is well illustrated. No prices are listed, but small clip-out coupon is included for salesman follow-up.

TV Show Pulls Well

Television advertising has been getting a favorable response. Time is purchased on an afternoon program in which a lady m.c. introduces various guest authorities on household affairs and comments on kitchen merchandise. During the show, the audience is invited to write into the store for a free booklet on kitchen planning.

Thirty-second radio commercials during the day play up the custom kitchen and remodeling service.

Much reliance is placed on a direct mail campaign. New homeowners, contacted through Dodge building reports, receive a friendly letter in which they are advised of the equipment carried and the offer of a visit from a kitchen expert with no obligation entailed. A return stamped card is enclosed for an appointment.

Many leads come in through referrals by architects who use the store to obtain standard specifications on cabinets and space for kitchen appliances.

Primary purpose in this sort of contact is to reach the new homeowner before the work is started so the store can plan and supply the entire kitchen.

Another good source of business is people who have purchased new homes and are dissatisfied with the cabinets and appliances they find there. This type of account is afforded a generous trade-in allowance for unwanted merchandise, which is then sold to builders who pay enough to make up for the difference allowed.

Large Outside Selling Staff

The staff of outside salesmen is made up of 10 men who are kitchen experts as well as solicitors. Three men call exclusively on builders and sell them mass orders. The other seven follow up leads for kitchen planning and individual appliance unit sales.

Customary procedure is to call at the home first, take measurements, note the location of plumbing, doors, electrical wiring, etc., and get other minimum piece price to the customer.

needed information. This data is turned over to the store's draftsman who makes up a sketch of a proposed layout. This is submitted to the prospect with an estimate and an attempt made to close the deal at that time. If the customer prefers, one or more sections of a kitchen can be worked on at a time under a sort of piece-meal arrangement.

Salesmen carry with them a portfolio containing several photographs of before-and-after kitchen installations. This marked contrast in household improvement never fails to make a strong impression on a prospect.

Booklets containing the same type of photographs are also freely distributed about the showroom for inspection by visitors. Full page color ads from national magazines showing the leading lines carried are displayed in the store, with reprints carried by the outside salesmen as well.

10-Man Installation Dept. Specializes In Custom Jobs

An integral part of the organization is an installation department of 10 men, all of whom are skilled craftsmen. They spend their time in a workshop some distance from the store, but are responsible for the assembling and the installation of the custom-made kitchen orders.

The business was originally started in a downtown location. In 1948 it was moved to the present site, especially constructed for the purpose.

Fundamental planning, according to Mannie Miller, owner and president, is to sell complete kitchen ensembles primarily, with individual appliance sales following as a natural consequence. Result has been that the firm has built up an outstanding volume in kitchen remodeling jobs as well as in sales of new equipment.

Lillie Mae Houston Heads I-H Home Economics Lab

CHICAGO—Approximately 40 Chicago home economists, press, and radio representatives honored Miss Lillie Mae Houston at a press luncheon in the Blackstone hotel here on her appointment as International Harvester Co.'s new director of home economics.

Miss Houston, who succeeds Jeanne Homm in that capacity, joined Harvester as a district office home economist in Sweetwater, Texas, on April 11, 1949. Prior to that time Miss Houston was a public school teacher at Abilene, Texas, and at Hardin-Simmons university.

Following her assignment at Sweetwater, Miss Houston was appointed regional home economist on Feb. 1, 1950, and continued in that capacity until Feb. 1, 1952, when she was given leave of absence to complete her master's degree at Oklahoma A. & M. college, which she completed May 26.

Miss Houston attended Hardin-Simmons from 1943 to 1946 and received her bachelor of science degree in home economics from Oklahoma A. & M. in 1946.



Across-the-top or U types... mild steel... galvanized... super finished... standard models... prompt service... low cost.

WRITE FOR DETAILS

RUDY Manufacturing Co.
Specialists in
Manufacturing Evaporators and Condensers
DOWAGIAC, MICHIGAN

more for your refrigeration tubing dollar

When you specify Bundyweld, you get matchless tubing features, time-proved dependability, plus full benefit of priceless engineering skills.

You get more for your tubing dollar when you choose Bundyweld for condensers, evaporators, and refrigerant lines. Look at all you buy:

1. Unequaled features. Bundyweld is the only tubing double-walled from a single strip, copper-brazed through 360° of wall contact. It's leak-proof. It's thinner-walled, yet stronger—has high thermal conductivity, high bursting strength.

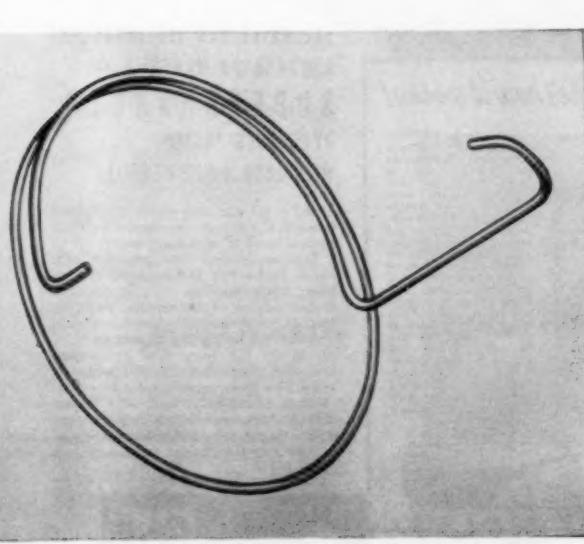
2. Dependable performance. The trouble-free performance of millions of refrigeration tubing

parts fabricated from Bundyweld during the last twenty years is testimony to its dependability.

3. Priceless engineering skills. Bundy engineers are right on hand to help you get simpler, cost-saving part designs and easier fabrication procedures. If you wish, Bundy will fabricate tubing parts for you, deliver them as you want them, when you want them.

Get more for your dollar. Specify Bundyweld, your greatest refrigeration tubing buy on every count.

Contact a Bundyweld Distributor (listed lower left), or write Bundy Tubing Company, Detroit 14, Michigan



DESIGN SAVINGS—Design of fixtures to produce a tubing part plays as important a role in savings as design of the part itself. The compressor-unit coil above illustrates Bundy skill in creating fixtures to keep costs down. Notice that the coil requires various types of bends in several planes, that one section crosses over another. How many fixtures produce the part at the Bundy factory? One! Best of all, savings in instances like this are passed right along to you.



FABRICATION SAVINGS—Bundy talent for finding better ways to fabricate tubing parts means minimum piece prices for customers. An example: the inlet tube above. The proximity of Bends A and B to ends of part tended to distort O.D. of ends, yet specs called for O.D. precision. Bundy engineers dug in, came up with results: a single fixture to produce all bends and size one end for O.D. of decimal tolerances, faster fabrication, minimum piece price to the customer.

Restaurant Study Reveals Proper Height For Work Surfaces To Minimize Fatigue

CHICAGO—The best height for a work surface is one that permits the worker's elbow to be at right angles to the body and the hands to be from two to three inches lower.

That information was passed on to members of the National Restaurant Association by Mrs. Mary deJarnett Bryan, member of the association's research committee. It was derived from an extensive research project conducted by the committee on the relationship of employee fatigue to the heights of work tables.

Mrs. Bryan said that where the worker is required to stand, the work surface should be high enough to permit him to stand upright. Good posture is important in fatigue reduction, she stated, defining good posture as that which provides the minimum strain on the muscles to hold the body upright.

To accomplish this end, the working heights of tables should be from 37 to 39 in. high for best efficiency. The variation is needed to adapt the work surface to the levels required of varying heights.

"We may even come to the point

where tables will be fitted with adjustable legs so that they can be fitted to the different individuals working at them," she observed.

In the absence of adjustable legs, however, she noted that variations in worker height can be met by providing workboards for extra tall employees and small stands for very short employees.

Where the employees are sitting, a height of 26 in. is recommended along with a good chair with an adjustable back. Small tables supporting appliances should be from 28 to 32 in. high in order to bring the work surface of the appliance up to the 37 to 39-in. level, she said.

The research indicated that ranges and work tables should be at least 36 in. high. Sink should be 35 in. high with a maximum depth of 14 in. for washing pots and pans and 8 in. for washing vegetables.

Serving counters should be from 36 to 38 in. high. Steam kettles would be best at 42 in. high with shallow depth. Coffee urns should have a maximum height of 56 in.

Other results of the research indicated that efficient use of a two-deck oven is more productive than a four-deck oven, she asserted. The top and bottom decks are hard to clean and put considerable strain on the employees in order to get at them.

Mrs. Bryan declared that it takes four times as much energy to remove boxes from an overhead shelf than it does to handle the same boxes at waist level.

Drayer-Hanson Buys Heat Transfer Firm

LOS ANGELES—George J. Morton, president of Drayer-Hanson, Inc., manufacturer of air conditioning and refrigeration equipment, has announced that his company has completed the purchase of the Jackson Engineering Co., Montebello, Calif., producer of aerial coolers and shell and tube heat exchangers for the petroleum and chemical industries.

Announcement was confirmed by Gordon M. Jackson, who will join Drayer-Hanson as vice president of the industrial division. He will have full charge of the mechanical design, selection, and sales engineering of all heat transfer equipment offered for use in engine cooling systems, gasoline refineries, power plants, and other industrial applications.

The purchase involves the exchange of approximately 30,000 shares of Drayer-Hanson common stock.

The industrial division under Jackson's leadership will continue the manufacture of all former Jackson products. The company will also take advantage of Jackson's experience in the manufacture of helically wound finned tubing to produce Cal-Fin tubing, formerly made by Cal-Fin Co.

This product will be used not only in aerial coolers, but also in a new line of Drayer-Hanson copper finned steam and water coils.

Kuebler also announced that Uni-

RESTAURANT & BAR EQUIPMENT

Uniflow Has Open House Doyle Rejoins Nelson as Vice Pres., General Mgr.

ST. LOUIS—G. J. Doyle has rejoined C. Nelson Mfg. Co. here as vice president and general manager, it was announced by James L. Nelson, chairman of the board.

Doyle was associated with Nelson from 1931 to 1942 in various capacities, including production manager and sales manager.

G. J. Doyle In 1942, he was appointed assistant to the district chief of the Cleveland Ordnance Dist. In 1943, he was appointed assistant to the director of supply control, Army Service Forces, Washington, D. C., and was stationed in the Pentagon.

In late 1944, Doyle was named production manager of Hussmann Refrigeration, Inc. He was elected vice president in charge of production in 1951, a position held until resigning May 1.

Lee's, Buffalo Distributor, Moves to New Quarters

BUFFALO—Lee's Distributing Co., appliance wholesaler, has moved from 350 Seneca St. to new quarters at 845 Washington St. in downtown Buffalo.

The new location has 50,000 sq. ft. of floor space and 5,600 sq. ft. of display area on the street floor alone. There are expanded facilities for service, shipping, and receiving, and an auditorium for demonstrations and dealer meetings.

USE THE COUPON!

For "easy-to-get" product information... use coupon in the "Information Center" form.

* Where Quality Counts Most - it's KEROTEST 3*



In the largest Air Conditioned ship afloat

KEROTEST

In critical valve applications like the year-round full ship air conditioning system of the new S. S. UNITED STATES,—KEROTEST Air Conditioning and Refrigeration Valves are the choice. Yes, where quality counts most it's KEROTEST—yet top quality and extra value operating features cost no more.

Another
Critical
Application

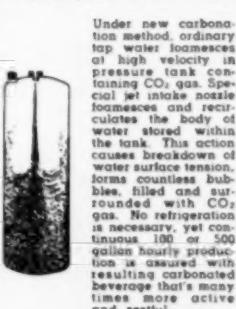


See Your
Kerotest Wholesaler
FIRST

KEROTEST
KEROTEST MANUFACTURING COMPANY
Pittsburgh 22, Pa.

Announcing...
BASICALLY NEW, PATENTED METHOD
OF CARBONATION
producing
GAS-FILLED WATER BUBBLES

Here's how it works!



U. S. PATENT No. 2,588,677



GENERAL OFFICE CANFIELD, OHIO
WEST COAST OFFICE: 1851 RANDOLPH ST. LOS ANGELES, CALIFORNIA



EXCLUSIVE NEW JET TURBULENT
CARBONATOR MAKES
S-U-P-E-R-C-H-A-R-G-E-D
BEVERAGES FASTER
WITH LESS EQUIPMENT!!!

• For the first time since 1907 there's been a basic new development in the method used to carbonate water!

This sensational new patented principle—exclusively the property of Carbonic Dispenser, Inc.—produces a higher degree of carbonation twice as fast as any method. No mechanical agitators or pre-cooling is necessary.

Get the full facts now by writing Carbonic Dispenser. You'll want to know how these remarkable new super-charger carbonators and only super-charger carbonators affect your business by producing more palatable beverages in less space with less trouble at less cost.



OFF THE CHEST

WHO GIVES BETTER DEAL, CHAIN STORE OR LOCKER?

Logan Locker
315 Hanna St.
Logansport, Ind.

Editor:

In your issue of May 26, the front page news item by C. Dale Mericle on the Mayfair supermarket chain's selling to home freezer owners seems to reflect an unusual amount of crabbing about the slice the "fly-by-night locker operators" have taken from the supermarkets' business. Quotations are from remarks reported from Edwin J. Fox, general manager and vice president of Mayfair Markets of Los Angeles.

In rebuttal:

a.) These "fly-by-night locker operators" have mostly been in the business as long as Mayfair, if not longer. They are businessmen who have invested far more, proportionately, than any general manager has in some business he is hired to run, and are consequently far more permanent in their communities than he is in his job.

b.) Locker operators have long been aiming, in general, to be the accepted frozen food centers of their communities. This place is directly in line with the natural growth of the locker business, which pioneered mass acceptance of frozen foods. Besides, they have the space for proper storage of large selections of frozen foods up to the time of sale, which most other businesses lack, to the detriment of the product.

c.) Locker plants are properly equipped to supply all freezable foods, including meats, custom processed in accordance with local health ordinances, and properly wrapped in an approved type paper, and quick-frozen. Usual non-locker processing includes only meat-shop style cutting and an inexperienced wrapping job in butcher-shop paper which is unsuited to frozen storage.

d.) If locker operators can put the fly-by-nights in the frozen food business (such as some supermarkets) out of the frozen food business, it would serve them right. The mistakes the chains admittedly made show their utter inexperience along frozen food lines.

e.) Locker operators are the entrepreneurs who are giving supermarkets a rough time in legitimate business competition by giving the public a good buy on all items without loss leaders to draw people to also buy high markup items.

f.) Most chains cannot sell any meats but prefabricated cuts under OPS regulations; locker plants have always sold quarters, halves, and principal cuts of beef to be custom processed, in their accepted role of provisioners. They have the know-how and they know their costs; most

others conceal processing costs in the price of prefabricated cuts of meat.

g.) Locker plants have, in general, always published their prices on lists for customer selection of foods; any concealed costs on "package deals" almost always arise from the food plan, which initially set up the deal it, acting for the consumer, bought from the locker plant. In such case, the locker plant is a supplier to the food plan, and not the average customer.

h.) The customer will eventually find whether the chain or the locker plant is giving him the better all-around deal on foods. Specialization in the frozen food provisioning field seems to favor the locker plant.

i.) Page 13, col. 1, same issue, carries a quote from "Grocers' Spotlight," which again makes the point

very well for another group of independent merchants.

Conclusion: It is music to the ears of independent businessmen to hear big business (acting very small) screaming about small business stealing their volume. If they must resort to name calling in the manner and poor taste of the Communists to draw attention from their own weaknesses, then let the buying public decide where it can get the best buys. Crying will get them nowhere.

Let me suggest that Mr. Fox open his mind to the fact that there exist others besides himself, and that what benefits the public most is best for it. If the small merchandiser can outdo the big one, more power to him. We all have to live.

W. DONALD KUNTZ,
Manager

ANOTHER ABANDONED BOX TRAPS CHILD

Jarvis Refrigeration Service
470 Duane St.
Astoria, Ore.

Editor:

Enclosed clipping from the *Astorian Evening Budget* ("Seaside Boy,

3. Cries Self to Sleep After Being Trapped in Abandoned Refrigerator") again emphasizes the need for removing hardware on doors from abandoned refrigerators.

This occurred in a small summer resort town 18 miles from Astoria. All we can say is "Thank God the gasket leaked."

Would appreciate a reprint of the articles that appeared in the News about year ago to turn over to the local newspaper in order to publicize this danger.

JAMES W. JARVIS

GETTIN' THERE FIRSTEST WITH THE MOSTEST

Dyer, Indiana

Editor:

I read your splendid informative magazine and I am very interested in where I can purchase the products advertised.

It is always a race to see which of us will get the AIR CONDITIONING & REFRIGERATION NEWS first to see "What's New" and the "Inside Dope" column.

(Mrs.) J. F. THOMPSON

Cutler-Hammer Sales For 1951 Set Record

MILWAUKEE — Setting a new record, net sales of Cutler-Hammer, Inc., in 1951 rose to \$61,861,585, an increase of 44% over the 1950 total of \$42,734,600.

Earnings were higher than in any previous year except 1947. Net profit totaled \$4,039,010, equal to \$6.12 a share, compared with \$3,948,158 a year ago, or \$5.98 a share. In 1947, net was \$6.33 a share. Earnings before taxes were up 71%, but Federal and state income taxes amounted to about 70% of pre-tax net.

G. B. Crane, president, and Henry F. Vogt, chairman, said the company's backlog at the beginning of 1952 was 42% higher than at the start of 1951. They added that incoming business continues at a high rate. Items for defense products account for a substantial part of this heavy volume.

The company has completed about half of a \$7,500,000 expansion program which will enlarge existing floor areas approximately one third.



YEAR-ROUND DEPENDABLE PERFORMANCE calls for perfect lubrication. To assure it, Kelvinator has used Suniso since 1930. Here in this rough machining operation, oil grooves are being cut into Polarsphere pistons. Subsequent precision machining will be protected by Suniso.



PURITY OF SUNISO IS SAFEGUARDED from storage tank to charging board. This panel checks rate of flow, deaeration, particle contamination and pressures. Kelvinator buys the best oil, keeps it best.

FAMOUS KELVINATOR POLARSHERE LIVES IN SUNISO FOR LONGER LIFE

The sealed-in-steel Polarsphere condensing unit made by Kelvinator to power its refrigeration equipment is as perfect as painstaking precision manufacture can make it. Every compressor piston, for example, is individually fitted to its cylinder, and clearance is held to a tolerance of one ten-thousandth of an inch.

To assure perfect lubrication for this precision mechanism, Kelvinator adopted "Job Proved" Suniso Oil in 1930 and has used it exclusively in factory charging ever since. Kelvinator's confidence in Suniso

is justified by the reputation for long life, economical operation, and trouble-free service which Polarsphere units enjoy. Kelvinator makes them efficient; Suniso keeps them efficient.

Kelvinator is but one of many leading refrigeration manufacturers who rely on Suniso Oils. Whether you make compressors, maintain them in a plant, or service them— you owe it to yourself to get complete information about the "Job Proved" superiorities of Suniso Refrigeration Oils. Just send the coupon below.

TECHNICAL ASSISTANCE AVAILABLE. Sun's engineers are at your service, without obligation, for consultation on lubrication matters. It may pay you to utilize their broad experience with all kinds of compressors and refrigerants.

Department AC-6

SUN OIL COMPANY, Philadelphia 3, Pa.

I would like to consult with a Sun representative;

please send the booklet "Suniso Refrigeration Oils."

Name _____

Title _____

Company _____

Address _____

City _____ Zone _____ State _____



A POLARSHERE IS CHARGED. This board automatically measures the amount of Freon and Suniso, and prevents a unit from being charged if anything is wrong. It shuts off, for example, if the smallest amount of air has entered.

SUNISO REFRIGERATION OILS

SUN OIL COMPANY, PHILADELPHIA 3, PA. • SUN OIL COMPANY, LTD., TORONTO & MONTREAL



...with top-flight refrigeration equipment like this coil and pan combination-backed by the finest engineering and a fair, rock-solid distributor policy. Interested...?

Talk it over with
Tenney
ENGINEERING, INCORPORATED
Newark, New Jersey

Advantages of Heat Interchanger

In Refrigeration System, Suction-Liquid Unit Sub-Cools Liquid Refrigerant and Superheats Suction Gas To Boost Capacity

DETROIT Some advantages of using a heat interchanger in a refrigeration system, particularly when evaporator temperature is 20° F. or less, were outlined for the Greater Detroit chapter of the Refrigeration Service Engineers Society recently by A. A. Lincoln, Michigan representative of the Heat-X-Changer Co.

Lincoln pointed out that a suction-liquid heat interchanger in a refrigeration system performs the double function of sub-cooling the liquid refrigerant and superheating the suction gas.

This is accomplished, he said, by passing the cold suction gases through a closed heat exchange surface in counterflow with the warm liquid refrigerant. When liquid refrigerant to the evaporator is sub-cooled, the result is an increase in the refrigerating capacity of the system. This is because the colder refrigerant liquid can absorb more heat in the evaporator.

Insures Dry Gas

On systems with a low superheat from the evaporator coil, a heat interchanger will boil off any entrained liquid refrigerant and insure dry gas to the compressor, he declared. This is especially important on flooded low sides or systems with low mean temperature differential such as liquid chillers.

A properly sized heat interchanger can eliminate the necessity for insulating suction lines. The suction line will not sweat if the suction gas is superheated to a temperature higher than the room dewpoint, he asserted.

Additional advantages resulting from the use of a heat interchanger were outlined by Lincoln as follows:

1. Capacity lift. If the refrigerating system capacity is on the border line, a heat interchanger can sometimes add enough of a lift to meet requirements. This can mean better temperature conditions or may permit a system cycle for defrosting or other purposes.

Increases Capacity of Expansion Valve

2. Expansion valve performance. Sub-cooled liquid refrigerant increases the capacity of an expansion valve. The general valve operation is greatly improved by elimination of flash gas in the liquid refrigerant. Control is steadier and vibration or chattering in the valve is prevented.

3. Reduction of oil troubles. A heat interchanger reduces oil troubles by preventing liquid refrigerant return to the compressor crankcase. Liquid refrigerant in a compressor crankcase can cause foaming of the oil.

4. Low temperature systems: On low temperature systems a heat interchanger provides a steady influence on the system. Any liquid surging through the low side is boiled off. Valve operation is steadier and

the entire system operates with less variation in pressure and flow. Low temperature systems offer the most advantages from the use of heat interchangers.

Eliminates Flash by Sub-Cooling Liquid

5. Static lift. If the evaporator is mounted appreciably higher than the condenser it is possible that the liquid refrigerant will flash due to reduction of pressure at the high end. A heat interchanger eliminates this possibility by sub-cooling the liquid.

Lincoln then discussed a number of desirable features of construction and design.

If the heat interchanger is to perform effectively, he said, it must first have high heat transfer. There must be sufficient surface, properly arranged, to effect the maximum amount of sub-cooling and superheating.

Next in importance to high transfer is low pressure drop on the suction side. Pressure drop in the suction line makes the compressor operate at a lower suction pressure. The result is a reduction of the system capacity.

A very high pressure drop can actually offset all the gain from sub-cooling. Unless the heat interchanger is properly designed it can do more harm than good. Low suction side pressure drop is highly essential. He suggested as a practical permissible pressure drop $\frac{1}{4}$ p.s.i.

Free Drainage Needed

The physical shape of the heat interchanger must be such that oil will not be trapped in the suction side. Connections should be arranged so that the shell or tubes are free draining. This is especially important in larger installations.

The tubing and fins should be arranged and baffled so that there is no possibility of bypassing. By this is meant that all of the cold suction gas must pass over the warm surface in a positive manner.

It is desirable that there be true counterflow between gas and liquid, Lincoln declared. Counterflow in a heat interchanger gives the maximum heat transfer and takes the most advantage of the temperature differences between gas and liquid.

Use of fins, or extended surface, results in the most compact unit with the minimum weight. The finned surface must be arranged so that it does not create a high pressure drop. In general, extended surface offers substantial advantages if properly handled in the design.

Keep Liquid Volume Low

The refrigerant charge should be kept as small as possible. The volume on the suction gas side is not important but the liquid volume should be kept to a minimum.

Lincoln then briefly noted the various stages that heat interchangers for liquid cooling have undergone, leading up to the type that the Heat-X-Changer Co. now uses—tubes for liquid and refrigerant cast in solid block aluminum.

First there was the liquid coil submerged in the tank of liquid, which proved to be efficient and subject to damage if the liquid froze, breaking the refrigerant tube and allowing liquid to enter the refrigerant circuit. It has the advantage, however, of storage for intermittent heavy usage and holdover to prevent machine short cycling.

Then the refrigerant coil was mounted on the outside of the liquid tank. Efficiency here was about the same or slightly lower than the coil in tank unit. It did overcome the danger of freeze-up and was more sanitary and had a storage for peak use and holdover.

Tube-In-Tube Cooler Efficient, Sanitary

A tube-in-tube cooler proved to be highly efficient as both liquid and refrigerant velocity could be controlled by design. But, Lincoln noted, efficiency and sanitation were the only advantages. The disadvantages included danger of freeze-up and breakage, no storage or holdover, with consequent machine short cycling.

A liquid coil submerged in a tank of refrigerant permits a highly effi-

cient unit and is sanitary, but has all the disadvantages of the tube-in-tube cooler plus the need for more refrigerant.

It was an analysis of heat transfer problems and liquid coolers in general which instituted the development of the cast aluminum cooler, Lincoln asserted. It was the result of an effort to develop a cooler with the efficiency of the tube-in-tube cooler but without its disadvantages.

In this cooler, the liquid and refrigerant circuits are wound in concentric helices with space between all tubes to permit a solid protection of aluminum between the tubes. The spacing and amount of aluminum is of such thickness as to assure positive protection from freezing damage.

The high conductivity of the aluminum permits the efficiency to remain almost the same as a tube-in-tube cooler. The aluminum block has sufficient holdover to prevent short cycling of the condensing unit and to

EVAPORATOR AT 10° F., 14.7 P.S.I.G. GAS FROM EVAPORATOR AT 15° F. SUPERHEAT						
Pres. Temp. of Comp. Gas to Cond. Snc. Comp. Temp. PSIG	Refrig. Effect. %F.	Circulated Btu/lbs.	Refrig. Btu/hr.	Refrig. Btu/hr.	% Change Perform. without Heat-X	
Heat Ex with 0° Pressure Drop	14.7 65 144.7	39.02	351	13,500	+11.6	
Heat Ex with 1° Pressure Drop	13.7 65 141.6	45.62	328	15,000	+ 8.7	
Heat Ex with 2° Pressure Drop	12.7 65 139.3	46.22	301	13,950	+ 1.1	
Heat Ex with 5° Pressure Drop	9.7 65 127.0	46.95	272	12,800	- 7.3	

tor as possible. On low temperature applications, however, the exchanger should be mounted outside the refrigerated area.

Lincoln then briefly mentioned his company's combination air and water cooled condensers, which, he claims, are more economical in initial cost, operating cost, and maintenance cost than either evaporative condensers or cooling towers in multiple hook-ups and chain store work.

Combination Unit Effective

He pointed out that in the combination unit, the air surface is sufficient to carry the condensing load until the ambient rises above 80° F. On many days of the year when the temperature is below 80° F., no water whatsoever is used.

Only when the temperature goes above 80° F. does the water valve open to admit the minimum amount of water necessary to keep the compressor head pressure at the desired point.

Longitudinal internal fins in the refrigerant tubes make possible a compact arrangement with highly efficient performance, he declared.

In reply to a question from the floor, Lincoln affirmed that for best operation the heat exchanger should be installed as near to the evapora-

tion unit as possible. On low temperature applications, however, the exchanger should be mounted outside the refrigerated area.

Lehigh used the table shown below to illustrate the difference in performance of a unit with and without a heat interchanger. The table also indicates how increasing pressure drop cancels out the benefits of the heat interchanger.

Lehigh Appoints Saunders Refrigeration Service Mgr.

LANCASTER, Pa.—Appointment of V. Lee Saunders as service manager for the Refrigeration Mfg. Div., Lehigh Mfg. Co. has been announced.

John Souders, who was in charge of the service department, will be chief ordnance inspector.

Saunders has long experience in the refrigeration and air conditioning field. He has served three years as air conditioning and refrigeration engineer for the Fanny Farmer Candy Co. of Brooklyn, two years in the merchant marine as electrical and refrigerating engineer during World War II, service manager for Joseph M. Zamoski Co. of Washington, D. C., and four years with the Washington Refrigeration Co.

He constructed a complete dairy, bottling, and pasteurization plant in his native Culpeper, Va., for the Meadow Brook Dairy Co. and was with the White Tower Corp. as electrical and refrigeration engineer.

Saunders is a member of the Baltimore-Washington section of the American Society of Refrigerating Engineers, and is president of the District of Columbia chapter of the Refrigeration Service Engineers Society.



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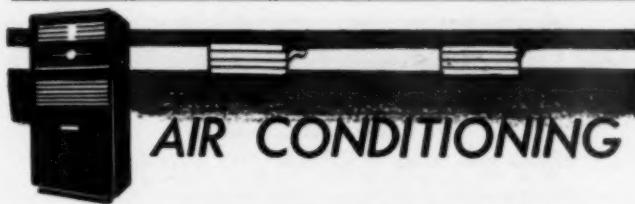


...with top-flight refrigeration equipment like this drum unit—backed by the finest engineering and a fair, rock-solid distributor policy.



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ENGINEERING, INCORPORATED
Newark, New Jersey



Low-Cost Houses Get Air Conditioning With 'Simple, Informal' Zoning System

WEST ORANGE, N. J.—Indicative of the predicted boom in residential air conditioning are the 89 low-cost, six-room houses under way here which feature small, low-cost comfort air conditioning claimed to contain "all the more important features of larger residential air conditioners."

BUILDER Edward Schwartz, president of Barclay Construction Co., Inc., Newark, said the system was designed essentially to maintain cool, comfortable, and clean indoor living during hot humid weather for the whole house—but only one section at a time.

This air conditioning plan employs a "simple, informal" type of zoning system, by which "only the rooms in use at any one time are cooled."

Heart of the air conditioning system is a small, compact 1-hp. York unit located centrally which makes use of the ducts and grilles of the gas-fired, forced warm air winter heating system. There are "cut-offs" in the ducts which during warm weather allow the total cooling capacity to be directed to one part of

the house, cutting off all other areas.

York engineers explained that this might be considered "intermediary or partial air conditioning," as total air conditioning—meaning air conditioning the entire house simultaneously—can be had at a later date by installing an additional 1-hp. unit.

This, the company said, "is the new, economical way to immediately have complete residential air conditioning." The second 1-hp. unit, which operates as an integral part of the original air conditioner, "can be quickly and inexpensively installed, adding the necessary amount of cooling required to air condition each room simultaneously."

Pleasant Ridge's unique zoning system will give the average householder just what he initially wants in air conditioning—cool, clean, dehumidified, and circulated air. During the day the living quarters will be cooled, while at night, by merely readjusting the "cut-off" or damper, the bedrooms will be air conditioned." Schwartz emphasized that air conditioning is included in the sale prices.

500-Ton System To Cool 11-Story Building In N.Y.

NEW YORK CITY—Modernization of Rogers Peet Co. at Fifth Ave. and 41st St. here by installation of an air conditioning system for the entire 11 floors began recently, it was announced by Gustave Fischer, chief engineer.

A Carrier 500-ton steam absorption system was chosen for the job. The contract for hoisting and placing in position on the roof of the plant's four aluminum cooling towers of 125 tons capacity each, weighing 4,000 lbs. each when filled, was awarded to the Mike Krasilousky Trucking & Millwright Co.

When completed, the installation will cool 20,000 sq. ft. of store space on two floors with a traffic flow of 250 customers per hour, plus work rooms and leased offices on nine additional floors.

Charles Williams, assistant to Fischer, was supervising the installation work.

To Construct Surgery Bldg. At Donaldson Air Force Base

GREENVILLE, S. C.—An air-conditioned hospital surgery building will be built at Donaldson Air Force Base here this year.

Officials said bids for the job were to have been received until June 17 at 11 a.m., by the purchasing and contracting office at the base. The basic bid included all plant, labor, tool, materials and equipment for the building, it was stated.

Paraphrased Nursery Rhyme Plays Up Restaurant's Air Conditioning



MUCH ATTENTION was attracted to the air conditioning system with this sign placed on the 5-hp. cooling tower of Koelin's restaurant in Louisville, Ky. The tower is in back of the restaurant where the parking lot is located.



SOME DUCTWORK was included in the Koelin restaurant installation of a 5-hp. packaged conditioner which was sold and installed by York Louisville Co., Inc., York distributor.

Booklet Gives 'Rules of Thumb' for Amount, Cost of Refrigeration for Air Cooling

CHICAGO—Some interesting "rules of thumb" on the amount of refrigeration that will be required and its cost for existing office buildings are contained in new booklet prepared for prospects by Kroeschell Engineering Co., large contracting firm here.

Entitled "Kroeschell Planned Program for Air Conditioning Existing Buildings," the booklet discusses the various methods of air conditioning multi-story structures and suggests that its "planned program" will permit the building to be air conditioned over a period of time at a much lower initial investment.

Such a program is compared to the growth of the tree with vertical risers for air, water, or steam representing the "trunk," which "should be planted first"; refrigerating equipment, heat exchangers, etc. in the basement representing the "roots"; and fans, ducts, and/or window cabinets to supply conditioned air in the building, the "branches" of the tree.

The "trunk" costs approximately 15% of the total investment; the "roots" 30%, and the "branches" 55%, the booklet points out.

As a guide to building owners, Kroeschell gives these average "rules of thumb" at the end of the booklet: "One ton of refrigeration is required for:

"An average of 300 sq. ft. of office space;

"An average of 250 sq. ft. of sales space;

"An average of 200 sq. ft. of dining space;

"An average of 150 sq. ft. of auditorium space;

"Dehumidification to the extent of 1½ gals. of water per hour;

"Absorption of heat from 3,500 watts of electric energy;

"Absorption of heat from 27 office workers;

"East or west sun on 120 sq. ft. of windows with venetian blinds.

"One ton of refrigeration requires approximately:

"1 kilowatt of electric energy per hour, or 20 lbs. of steam per hour (including pumps);

"90 gals. of 75° city water per hour, or 180 gals. of cooling tower water per hour;

"400 c.f.m. air supply fan capacity.

"The cost of air conditioning systems for existing office buildings will vary," states the booklet, "from \$2.50 to \$5 per sq. ft. of rentable area. To start a program, the cost of parts of 'trunk' and 'branches' of air conditioning system will vary from \$0.25 to \$0.50 per sq. ft. of rentable area.

"Operating and maintenance cost will vary from \$0.15 to \$0.25 per

sq. ft. of rentable area per annum, not including amortization.

"The area required by the apparatus will seldom exceed 3% of the rentable area served."

The Kroeschell booklet cautions that "these 'rules of thumb' are average and must be modified to suit specific requirements."

Air Conditioning Aids Atomic Energy Research

ROCHESTER, N. Y.—Atomic energy research experiments are being conducted at the University of Rochester with a greater assurance of success than ever before due to air conditioning.

An air conditioner installed for the Atomic Energy Commission enables close control of temperature and humidity in a room containing some 10,000 rats held for use in research.

Temperatures in the room are maintained within one degree of the prescribed limits, according to Charlie Sheehan of Sheehan Equipment Co., here, which installed the Baker "Central Air 1000" air conditioner. As a result, animal losses are kept to a minimum, he said.

The unit is equipped with a steam heating coil, supply and return ducts, and a take-off duct to exhaust 25% of the return to the outside to keep odor problems at a minimum.

In addition to this unit, the Baker distributor also sold the Atomic Energy Commission three Baker Central Air 500's and two "Baker-air" 300's.



Now 100% improved—and 100% foolproof with new fiberglass depth filter for increased filtering capacity—and new MOLDED Remcal Drying agent for increased moisture-absorbing capacity and improved efficiency. Also with silica gel. Capacities 1-1/2 thru 5 tons. Send for descriptive folder.

REMCO INCORPORATED
ZELIENPOLE, PA.

(F.O.B. SYRACUSE, N.Y.)

Here's why the Carrier Cub
Ice Maker is your baby!



- The Cub:
 - saves you money, even if you use just a little ice!
 - carries the lowest price tag ever on a genuine Carrier Ice Maker!
 - is yours for only a few dollars down! Terms are easy . . . easy!
 - makes up to 200 pounds of ice a day...for only 30 cents!
 - makes long-lasting, crystal-clear cubes! Not milky, melty flakes.
 - is the only ice maker its size with optional built-in crusher!
 - comes complete with 100-pound ice bin at no extra cost!
 - fits in 2 x 2 feet of floor space! Your ice is where you want it!
 - is the right height! No stooping or squatting to get ice from the Cub!

It's hotter than a pistol! It's bigger than all-get-out! It's your chance to make important dough . . . easy as rolling off a log. Because these new Carrier Cub Ice Makers are really sumpin'! That new low price busts the market wide open. Yessir, it's your oyster!

So write, wire, telephone for the P-R-O-F-I-T story

on the new, new, new Carrier Cub Ice Maker. The minute the news leaked out, they started selling like hot cakes. Now they're rolling off the production line and we're really spreading ourselves in advertising and promotion. So climb aboard! Carrier Corporation, Syracuse, New York.

Don't forget the big model! It'll save you money if you use over 200 pounds of ice a day. It makes up to 450 pounds a day and it is also available with a built-in crusher.



Carrier

They'll Do It Every Time . . . By Jimmy Hatlo

OTTO OILCANN, INTERVIEWED FOR A SHOP JOB, GAVE OUT LIKE HE WROTE THE MACHINISTS' MANUAL . . .

PLenty OF MACHINE SHOP EXPERIENCE, HEY? I CAN RUN ANYTHING FROM A YO-YO WINDER TO A GYRO-TURBINE PLANT... I CAN TAKE A JET ENGINE APART, BLINDFOLDED, AND PUT IT BACK TOGETHER WITH MY FEET! GUESS I'M JUST SORT OF A GENIUS ON WHEELS--HYDROTELS, TURRET LATHES, ROTO DRILLS... THEY'RE ALL TAPIOCA WITH ME . . .

SO HE WAS HIRED . . . THEN IT COMES OUT . . . HE DOESN'T KNOW A COTTER PIN FROM A FRIED EGG . . .

ER--SAY, FRIEND--UH--THIS IS MY FIRST DAY HERE--HOW DO YOU GO ABOUT STARTING THIS WHATCHAMACALLIT?



Do You Have 'Both Feet On The Ground?'

REVERE DRYSEAL REFRIGERATION TUBE HAS A "FLARE" FOR NOT SPLITTING!

It's not just a flare, it's practically a certainty that you can flare Dryseal for compression fittings without splitting. The secret is its special temper and its ductility.

And because it is dead-soft Dryseal can be bent with the hands with little effort. Along with its workability is the assurance that when you take Dryseal from the carton it will be as bone-dry and dirt-free as Revere's most modern manufacturing methods can make it. The last step in the manufacture of Dryseal is the double crimping of both ends of the tube, so that Dryseal is sure to come to you free from dirt and moisture. And the double crimp is made in such a way as not to change the diameter of the tube so that it can pass through any opening large enough for the tube itself.

And, for your greater convenience, Dryseal is packed in a nifty-50, one-coil carton. This carton has been attractively designed for easy identification in stock and contains one 50-foot coil of Dryseal Refrigeration Tube, making it easier to handle, light weight and economical. Carton is sturdily made to assure protection of the tube.

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NIFTY-FIFTY...ONE COIL CARTON*

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"I have always felt that whatever the Divine Providence permitted to occur I was not too proud to report. The people are not served by pussyfooting, or by that sort of journalism in which nobody will ask who is the editor of a paper or the writer of an article, and nobody will care."—Charles A. Dana.

Night Shift For Shoppers?

THE EARLY BIRD who gets the worm may thus leave a more enticing apple for the late riser.

This doesn't mean that a full day's work isn't necessary for success in business, but there are some fields of endeavor where the day's efforts needn't begin until well after the robins have started digging. This has long been true in the entertainment world; likewise in sports where, for example, night baseball games have become almost the rule rather than the exception in minor league cities.

There is also increasing evidence that shoppers don't start out quite so early in the day anymore. In fact, a growing percentage of consumers are buying more and more things AT NIGHT rather than during the day.

In the light of these trends Ben Franklin would perhaps today be revising his "early to bed, early to rise" suggestion.

Appliance dealers and salesmen, too, might find it more profitable to sleep late . . . and work late.

Just how much selling now actually occurs at night is strictly a matter of conjecture, but some interesting thoughts on the subject were expressed in a recent *Printers' Ink* by columnist E. B. Weiss.

"Since supermarkets are open throughout the country an average of four nights a week, it is entirely probable that some 20 to 25% of their total food volume is done at night," he suggests. "Where downtown department stores are open two nights weekly, some departments may do 15 to 20% of their total week's volume at night. The branch store figure may be higher."

These figures, he admits, are mere guesses, but they are supported by some community-wide data from a California shopping center:

"It is open six nights a week—and does more than 65% of its total week's volume at night! That may be the handwriting on the wall; I think it is."

Also pointed out is the fact that Sears now gets the largest percentage of its catalog buying from URBAN not rural areas. Husband and wife, who can't shop together during the day when stores are open except on a Saturday which is usually filled with other activities, can thumb through catalogs at night and make their selections at leisure.

And the appliance industry knows that a sizeable number of sales are closed at night in the house-to-house selling field.

Neighborhood, suburban, and regional shopping centers, along with those large roadside furniture stores, obviously sell much more at night than during the day.

We aren't suggesting that appliance dealers immediately change their stores and selling hours. They might, however, give the matter some SERIOUS THOUGHT and do some checking on just what time of day most of their sales are made.

And here's something else:

A leading utility recently made a spot check (the results were so interesting that a thorough study is now planned) on how much it costs to "stop" passersby merely by leaving show-windows LIGHTED AT NIGHT.

Electricity consumption for these lights averaged one tenth of a cent per person. Even if the appliance dealer decides against staying open at night, he might consider leaving the store lights burning brightly to attract window shoppers.

They could be his CUSTOMERS tomorrow afternoon.

Steps In Developing Frozen Foods Dept.

- (1) Set Up Separate Dept. with Supervisor
- (2) Use More Modern Cases
- (3) Locate Near Fresh Produce
- (4) Identify, Advertise This Merchandise

CLEVELAND—"The more freezers that are sold the more customers there will be for frozen foods, so we are willing to sacrifice a few sales for the present, feeling confident we can increase our sales in the future," declared a supermarket official at the 15th annual meeting of the Super Market Institute here in commenting on freezer-food plans.

"In our city there are almost as many dealers as there are appliance dealers," said Reese Verner, secretary-treasurer of A. J. Bayless Markets, Inc., Phoenix, Ariz.

"Many retailers are disturbed over this type of deal. We feel that much of the advertising of these food plans is misleading and that anyone purchasing a freezer on this plan has been misinformed, but we cannot close our eyes to this deal because it is being sold by the thousands," he said.

Most of Verner's discussion, however, was devoted to the problem of developing the frozen foods department in the average supermarket.

"A recent survey shows that 84% of grocery store patrons purchase frozen foods. With this large percentage, we operators should give some very careful study to this department," he emphasized.

FAULTS IN MERCHANDISING

"We want to bring to your attention several things being done today by many operators that should be corrected so that greater sales can be made:

"1. Poor department identification is prevalent. As a rule, there is nothing to tell anyone where the frozen foods are displayed.

"2. Displays of frozen foods are generally inadequate to do a good merchandising job.

"3. A large portion of the available cabinet space is not being used; no serious attempt is being made to keep cabinets full.

"4. No real attempt to sell is in evidence at the 'point of sale.'

"5. For the retailer to get and maintain his fair share of this rapidly increasing business, more cabinet footage is necessary. More cabinet footage will increase sales.

"6. Fresh produce and frozen food departments should be arranged near each other. A man should be assigned to take care of this department daily.

"7. Only by decentralizing the frozen foods department can the necessary future expansion take place. If this cannot be done, at least a supervisor should be appointed for this department," Verner suggested.

HOW TO CORRECT FAULTS

"Until two years ago, this list of don'ts could have applied to our operation. After some very careful study and a number of tests, here are some of the changes we made:

"1. Set up a separate department for frozen foods.

"2. Appointed a frozen foods supervisor and buyer, giving him complete charge of this operation.

"3. Replaced our old style cases with new open type self-service models, adding additional cases where space would permit. In one store we have 60 ft. of frozen food cases. Sales are averaging almost 8% of total sales in this location.

"4. Placed our frozen foods next to the fresh produce departments. We sell more frozen foods in our stores where the two departments are together.

"5. Re-arranged our merchandise so that all items of the same variety are together, regardless of brand.

"6. Started giving our stores daily delivery service, so that cases could be well stocked. A well-stocked case will sell more merchandise.

"7. Placed signs over frozen food departments, using 'point of sale' advertising material where possible. Frozen foods can be merchandised. Just a few weeks ago, a large manufacturer wanted to use Phoenix for a test market on a new frozen dessert. We cooperated with them and in one week's time sold over three hundred dozen of this new item, at 37 cents per package; customers are anxious to try new frozen items.

"8. Advertising frozen food items often, informing customers we have complete stocks in this department. We advertise twice each week in our local newspapers. We have frozen foods in each of them.

"After we have done all this, we use every other means we can think

of to see that our customers shop the fresh produce and frozen food departments, even if it is necessary to import a pony to get the job done," commented Verner.

"By making a few changes, such as these mentioned, we have increased our frozen foods sales more than five times. Today, frozen foods is a department of its own, doing a good portion of our over-all business.

"We would like to point out the importance of carrying an 'economy' grade of merchandise which is of good quality. At the present time we are carrying one brand of 'economy' grade and the sales are outstanding. This one grade comes within just a few dozen of out-selling all our 'A' grades combined, which means price has a very strong selling power in frozen foods. We haven't received one complaint on the 'economy' grade we carry.

"In a recent survey, frozen foods accounted for 5% to 6% of total store volume. With this in mind, the question operators face is:

"How many frozen food cases should be purchased for a new store?" The following figures were furnished us by the Haussmann Refrigeration Co.:

"In laying out a store, we suggest setting an objective frozen food sales volume equal to 5% of estimated total store sales. Sales per lineal foot of equipment are estimated at \$25 per lineal foot per week. For example, if we were laying out a store for an objective of \$5,000 total weekly sales, we would arrive at the proper amount of frozen food equipment by using this formula: \$5,000 total weekly sales

5% of above in frozen food sales

\$ 250 frozen food sales per week
" \$250 weekly frozen food sales divided by \$25 frozen food sales per lineal foot of case equals 10 ft. of food case required. In larger stores, sales per lineal foot of equipment should be higher than \$25. Some operators give figures running as high as \$34.25 per lineal foot."



HOMEBWARD BOUND COMMUTERS to Detroit's northern suburbs every day see this striking billboard for the Deepfreeze freezer-food plan, visible for a distance on Woodward Ave. A suburban dealer's signature was placed along the bottom of the billboard opposite the arrow some days after this picture was taken. The Deepfreeze plan is one of several operating in Detroit.



25 Years
OF REFRIGERATION EXPERIENCE
Back of the
DOLE PLATE

The FIRST Vacuum Plate evaporator was designed, produced and pioneered by DOLE. Dole Plates are sold and used throughout the United States and the rest of the world.

DOLE was FIRST to develop and Patent the Vacuum Plate systems for all types of refrigeration applications . . . FIRST to use a Vacuum to achieve greater efficiency by pressure contact between jacket and coil . . . FIRST to develop and patent Vacuum Hold-Over principle . . . FIRST to apply the principle of Vacuum Plate refrigeration in Latent Heat Storage . . . FIRST to develop Hot Gas Defrost, for use with Vacuum Plate Refrigeration.

DOLE is FIRST in continuous research and development of new products for the benefit of the industry.

25 years of experience manufacturing refrigeration equipment has made DOLE the leader—often imitated but never equalled.



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Quality in
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DOLE REFRIGERATING CO.

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103 Park Avenue, New York 17, N.Y.
In Canada: Dole Refrigerating Products Limited
44 Elgin Street, Brantford, Ontario

What's New

When requesting further information on new products, please use "Information Center" form.

'Write-on-it' Tape Makes Circuit Identification Easy



KEY NO. B-640

ROCHESTER, N. Y.—Time and labor are said to be saved through use of the recently developed Label-on plastic marking tape on which all necessary electrical circuit data can be noted and the tape applied directly to panels, circuit breakers, switches, fuses, and wall outlets, as well as

"flags" to wires and drop cords. The new tape is pressure sensitive, sticking without moistening to any dry and comparatively smooth surface, according to Labelon Tape Co.

The tape may be written on with a pencil or any pointed instrument—but the writing is not on the surface of the tape. It appears beneath a transparent plastic outer layer which protects it against smudging, dust, oil, water, and chemicals, the company said.

Temperatures between -40° F. and 160° F. do not affect the tape in any way," the manufacturer stated. "It is fadeless and provides a permanent label that can be stripped off one surface and re-applied to another many times without leaving a mark or losing its adhesive quality."

Four standard colors (blue, green, black, and red) are available, providing a handy aid to coding, and widths from $\frac{1}{8}$ in. to 2 in. in a wide variety of roll lengths, all fitting standard dispensers or those supplied by the manufacturer.

Labelon "Write-on-it" tape is also recommended for many additional uses, such as labeling tools, dies, and tool cribs, repair parts, laboratory apparatus, and packages for storage.

Sherer Ships All-Purpose, Multiple Deck Open Case



KEY NO. B-641

MARSHALL, Mich.—Sherer-Gillett Co. here is now shipping to its distributors a new all-purpose, multiple deck, open refrigerated display case known as the "Centennial" model in view of the celebration this year of the 100th anniversary of the company's establishment.

Available in either 6-ft. or 10-ft. lengths, it is possible, with only two exceptions, to fit them into any required lineup in 2-ft. graduations, the continuous display feature being easily accomplished by use of factory-engineered joining kits, the company said.

The basic case is 40 $\frac{1}{2}$ in. over-all in depth, including the extruded aluminum guard rail, and 45 in. high. A mirrored superstructure offered as an accessory brings the over-all height up to 59 in., a standard height in the Sherer line of open, self-service equipment.

The new 3100 Centennial models feature a larger display capacity

(31.4 sq. ft. and 52.3 sq. ft. respectively in the 6 and 10-ft. lengths) with refrigerated shelf area of 23.6 sq. ft. in the 6-ft. model and 39.3 sq. ft. in the 10-ft. length.

Non-refrigerated shelf area for display of related items provides 7.8 sq. ft. in the 6-ft. length and 13 sq. ft. in the 10-ft. model.

Easy accessibility to all merchandise is provided in the set-back shelf arrangement. "Twindow" two-glass sealed units forming the front of refrigerated display compartments, Sherer-Gillett pointed out. Heavy plate glass ends are easily removable when cases are joined for continuous display line-ups.

It is claimed by the company that new models will provide adequate temperatures for display of any of the three major food items requiring refrigeration—dairy products, packaged meats, and produce. When used for packaged meats at a 28-32° F. temperature, use of a defrost timer is required. Otherwise, the forced convection coils are self-defrosting on the off-cycle of the condensing unit.

The Centennial models continue the use of the Sherer cooling principle featuring atomized air, directional flow, and recirculated air. This system "provides a steady maintenance of temperatures with surprising economy," according to the company. The 6-ft. model 3106 operates on a $\frac{1}{2}$ -hp. condensing unit for either dairy products or produce display in a 90° F. room.

The company claims that the new models are "the most versatile" it has ever produced.

Establishment of the company dates back to 1852 with the formation of E. W. Gillett Co. In 1905 Sherer Brothers Co., organized in 1882, was merged to form Sherer-Gillett Co.

For many years the company specialized in the wholesale grocery field, later manufactured wooden display counters for food markets, bakeries, drug, hardware, and appliance stores, and other retail establishments.

One of the most popular of the company's products was a bulk food counter and this was improved and patented by S. J. Sherer who, with his brother W. G. Sherer, had formed the Sherer Brothers Co.

The development of packaged foods marked the elimination of bulk

foods from food markets and the bulk food display counter which had been sold by thousands throughout the country was discontinued. However, many of these early counters are still in use.

Since 1928 the company has manufactured refrigerated display and storage equipment exclusively and is represented by distributors throughout the United States. It also finds a wide market for its products in the overseas field.

R. P. Sherer, A. W. Sherer, and R. D. Sherer are currently members of the firm's board of directors, with R. P. Sherer serving as board chairman. John H. Coolidge heads the management staff as president.

Coolidge said in commenting on the centennial of the company: "We cannot help but be proud that our company has successfully weathered so many of the rises and falls experienced by our economy during the past 100 years and of the fact that we are in a rather select group in being able to commemorate our 100th anniversary."

"We realize we cannot expect our prospective customers to favor us with business simply because of our age, but we do feel that it speaks well for the conduct of the company's business in its relations with customers, the soundness of its business practices, and the good value offered in its products."

Industrial Chilling Unit

Ranges from -10 to -80°

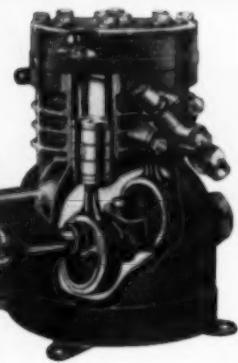
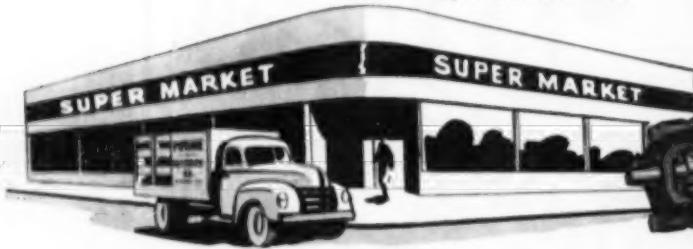
KEY NO. B-642

CINCINNATI—A compact industrial chilling machine suitable for testing procedures with temperature requirements of -10° to -80° F. is now available from Sub-Zero Products here.

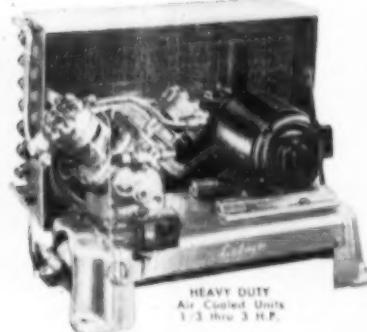
Known as the Sub-Zero Model R-70, this unit can be used in defense and civilian industrial application involving testing of parts, instruments, etc. that must be able to withstand the effects of extreme cold.

The Sub-Zero Model R-70 is equipped with a chilling chamber 30 in. by 18 in. by 33 in. deep, with more than 22 sq. ft. of freezing surface. The unit has a thermal capacity of 800 B.t.u. per hour at -70° F. with temperature control adjustable from -10° to -80° F. Outside dimensions are: height 47 in., length 48 in., and width 43 in. Shipping weight is 950 lbs.

"Gives every job something EXTRA"
Says the LEHIGH TEAM



Lehigh BLU-COLD rugged, heavy duty construction and reliable ASRE Ratings give you the satisfaction of installing "America's Most Modern Condensing Units" and your customer a guarantee of trouble-free, long term service. That's the story that thousands of dealers, service men, and users tell us — to tell you See your Lehigh jobber or write for catalogs.



HEAVY DUTY
Air Cooled Units
1-3 thru 3 H.P.

RECENT LEHIGH DEVELOPMENTS YOU'LL WANT TO KNOW ABOUT

AUTOMATIC DEFROST PACKAGE SYSTEMS. Condensing unit, Evaporator Blower, all controls, factory pre-engineered and assembled. Ready to install. The finest, most practical system on the market. Unlimited market possibilities for you!

NEW TRUCK SYSTEMS for city deliveries with many stops,—on-and-off road operation,—and for long distance hauling. Many outstanding engineering features. Prospective users in every community and industry!

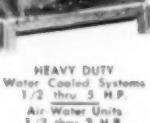
Write for new data sheets



PACKAGE
Air Cooled Units
1-4 thru 1-1/2 H.P.
HERMETIC
SEALED UNITS
1-4 thru 1-1/2 H.P.



TRUCK UNITS
AND SYSTEMS
1-1/2 thru 3 H.P.



HEAVY DUTY
Water Cooled Systems
1/2 thru 3 H.P.
Air Water Units
1/2 thru 3 H.P.



Lehigh BLU-COLD

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Information Center



For more information on What's New products, current literature and catalogs available, equipment advertised in AIR CONDITIONING & REFRIGERATION NEWS use Key Numbers where designated or specify products advertised and we'll see that you receive this information promptly.

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Key No.	Key No.
Key No.	Key No.
Key No.	Key No.
Key No.	Key No.

Products Advertised
(list name, page, and issue date)

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What's New (Cont.)

American Radiator Introduces Remote Air Conditioner



KEY NO. B-643

PITTSBURGH—"Remotaire," a remote-type room conditioner providing year-round air conditioning for multi-room installations and featuring individual room control, is being manufactured by American Radiator & Standard Sanitary Corp. here.

For cooling, chilled water is circulated through the coil in the Remotaire units. Heating is obtained by circulating hot water through the coil. In mild weather, when neither heating nor cooling is required, fresh, filtered air can be had by turning on the unit fan.

Ventilation air is introduced separately to each room through a small wall aperture behind each unit.

American-Standard emphasizes the Remotaire's "easy installation, flexible, economic operation, and low maintenance."

For installation, three pipes are needed—water supply, return, and drain. These connections are made inside of the unit, either right or left end to suit the installation. The only

electrical connections are the installation of the standard 115-volt BX cable into the junction box in each unit.

Stressing the unit's flexibility of operation, the manufacturer points out that Remotaire can be shut off in space not in use and that individual units can be turned on after hours when the central chilling plant is shut down. Residual cold water in the system will provide comfort conditions, it is said.

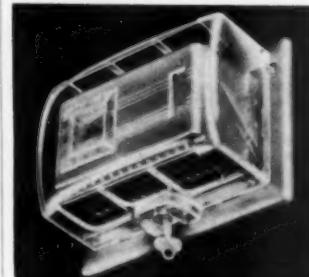
Regarding maintenance, American-Standard notes that both fresh and recirculated air are filtered separately before blending within the fan unit. Front and end panels can be easily removed for inspection and filters quickly replaced or cleaned, the company states.

Listing other features, the manufacturer says that the unit is "exceptionally quiet" with low-speed fans and acoustically-treated air passages and that room ventilation can be adjusted—either manually or it can be automatically operated—with the fresh air damper.

Designed for location under windows, the units can be free standing or recessed into the wall 4 in. The unit also has toe-step offset, coil shield, and end sections which allow more than a 90° horizontal wrench swing.

Four standard control packages are available. However, the Remotaire "lends itself to special control adaptations to suit the particular installation requirements," according to the company.

New Thermostat Guard Eliminates Tampering



KEY NO. B-644

MINNEAPOLIS—The Minneapolis-Honeywell Regulator Co. has introduced a streamlined clear plastic guard for its electric clock thermostats to prevent tampering.

The guard's transparent face allows the clock and thermometer to be seen, and large openings on top and bottom permit free flow of air into the control. Clock and thermostat settings are fully protected by the guard, which is equipped with lock and key.

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ice maker
SALES**

**FILTRINE
"Taste-Master"
Deminerilizer
in the water line**

**Cuts Service
No Tastes
Clear Ice
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Crystal ice . . . without sludge-forming rust, sediment, mineral residue, chlorine taste . . . "milkiness." Ends major source of service calls. Write for new literature.

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MANUFACTURING CO.
BROOKLYN 5, N.Y.**

IT'S NEW! IT'S ORIGINAL! IT'S FOR YOU!

Designed Especially For Night Clubs, Taverns, Clubs, and many other types of businesses

Equipped with Universal Hermetic Unit

FAST SELLING AND A REAL MONEY-MAKER!



COMBINATION ICE CUBE MAKER-BEVERAGE COOLER-FROSTED GLASSES REFRIGERATION CASE

Stainless Steel with Sliding Doors

MODEL 1-6 SC-FG. Makes 150 lbs. of ice cubes daily, dry cubes 1800 12-oz. bottles daily and frosty glasses as easily reached shelf.

REMOTE TYPE MODEL dry cubes 1800 12-oz. bottles daily. Provided with adjustable separators for 10 different brands of beverages.

For Full Information and Prices Write to:

4-BROTHERS REFRIGERATION MFG. CO.

Factory and Showroom: 1427-31 So. 8TH STREET, PHILADELPHIA 47, PA.

Exclusive Franchise in your Territory available to dealers and distributors. Please write or call.



Built-In Radiant Heating Unit Warms Rubber Mat

KEY NO. B-645

NEW YORK CITY—A rubber mat with a built-in radiant heating unit has been developed by the mechanical goods division, United States Rubber Co. under the name "Uskon."

The company says the new mat has been tested successfully in refrigerated or unheated areas of industrial plants, among several other types of places, to provide greater comfort to employees.

On the surface, the heater looks like a rubber floor mat. Its center, however, contains a layer of electrically conductive rubber which constitutes the heating element. It operates on 110-volt current.

Normal operating temperature for the heater is about 35° above the

surrounding temperature. This is warm enough to give adequate comfort but not hot enough to feel uncomfortable under foot, the company noted.

Receiver Combines Work Of Two Instruments

KEY NO. B-646

PHILADELPHIA—A new receiver for measurement and control of flow and liquid level has been developed by the industrial division of the Minneapolis-Honeywell Regulator Co.

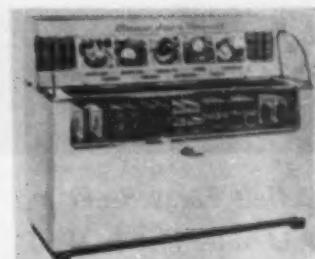
The new instrument, an Electronic inductance bridge receiver, combines in a single instrument a number of functions which formerly required the use of two instruments.

For example, the new instrument makes it possible to indicate, record, integrate, and control flow and liquid level. Data can also be retransmitted pneumatically to a second receiver remotely located. An Indexet mechanism is available to reset the control index from a remotely located transmitter.

Incorporation of these functions in one instrument case is an important factor in many applications where conservation of panel space is a vital consideration.

Accurate to within plus or minus $\frac{1}{4}$ of 1% of full scale the instrument combines the time-proven inductance bridge transmission system with the Brown "Continuous Balance System" for power positioning of the pen.

Easily installed in replacement of older inductance bridge receivers, the new instrument does not require any special or extra equipment.



Large-Capacity Cabinet Is Added to Savage Line

KEY NO. B-647

UTICA, N. Y.—A large-capacity glass front ice cream merchandising cabinet, the GF-13, has been announced by the Refrigeration Div. of Savage Arms Corp. here. The new merchandiser, now in production, has a capacity of 600 pint packages.

The Savage GF-13 features a 4-ply, non-fogging glass front, with additional protective plate. A fluorescent tube in the superstructure floods the contents of the cabinet with brilliant light and lights the full-color ice cream pictures and flavor strips.

Eight cross evaporator plates form seven refrigerated compartments. Frost clips on all plates simplify frost removal.

High wings and the design of the superstructure reduce air currents and aid in maintaining proper ice cream temperatures without excessive running of the $\frac{1}{4}$ -hp. 220-volt compressor.

Make "dog-days" your MONEY-MAKING DAYS with SERVEL Supermetc!

TYPICAL SUPERMETC FEATURES FOR FASTER, EASIER SALES!

- Simple, compact — takes up less space
- Built-in lubrication — no manual oiling
- Cushioned quiet — special mountings prevent vibration
- Oil-free refrigerant — no oil "slugging"
- Ruggedly built — rust-resistant bronze finish

SUMMER PROFITS KEEP CLIMBING WHEN YOU SELL SERVEL. NO INSTALLATION COMPLICATIONS, NO COSTLY "CALL BACKS" WHEN THE JOB IS DONE. AND, YOU CAN GET A SERVEL SUPERMETC QUICKLY—ANY SIZE FROM $\frac{1}{4}$ TO 3 HP—DIRECT FROM YOUR NEARBY SERVEL WHOLESALE SUPPLIER. ONE STOP AND YOU HAVE EVERYTHING YOU NEED TO INSTALL A CONDENSING UNIT FOR YOUR CUSTOMER IMMEDIATELY.

START SELLING SERVEL — the hermetic with the low cost Factory-Extended Warranty. Point out to users of worn-out compressors how they're causing trouble—and costly hot weather losses. Recommend a replacement installation that rules out "time out" . . . that makes every buyer another booster for your refrigeration business.

Servel SUPERMETC

Models for every commercial refrigeration and air conditioning use . . . $\frac{1}{4}$ to 5 H.P.

101 WHOLESALE SUPPLY DEPOTS NOW SELL SERVEL

TURN HEAT WAVES INTO BUYING WAVES! • MAIL COUPON TODAY

Servel, Inc.
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Send full details about Servel Supermetc and name of nearest Wholesale Supplier:

NAME (personal): _____

TITLE: _____

COMPANY: _____

CITY: _____ ZONE: _____ STATE: _____



Buffalo Forge Profit And Sales Rise In 1951

BUFFALO Buffalo Forge Co. and subsidiaries reported net profit of \$2,026,303 equal to \$6.24 a share for the year ended Nov. 30. This compared with \$1,790,030, or \$5.48 a share during the previous fiscal year.

The company's sales and profit before taxes each increased about 53% from the preceding fiscal year, but, because of higher taxes, the increase in net earnings from the previous fiscal year was only about 14%.

Net sales were \$25,887,862 compared with \$16,936,059 in the previous fiscal year, according to Buffalo Forge.

"The impact of increasing taxation of corporate income," Chairman Henry W. Wendt and President Edgar F. Wendt said in the company's pamphlet report, "is clearly demonstrated by the fact that the required provision for United States and Canadian taxes based upon income for the fiscal year 1951 amounted to \$7.66 per share as compared with \$3.61 per share for the preceding fiscal year."

Philadelphia Area Sales Slack In First Quarter →

PHILADELPHIA — Statistics on the sales of refrigerators, home freezers, and electric ranges by dealers in the metropolitan Philadelphia area during the first quarter of the year made available recently by the Philadelphia Electric Co.

Covering sales in Bucks, Chester, Delaware, Montgomery, and Philadelphia counties, the figures showed refrigerator sales for the quarter to be down 58% from the same period last year. Freezer sales were off 36% and range sales 63%.

Retail value of the appliances sold were down 54% on refrigerators, 37% on freezers, and 60% on ranges. Yet the average retail price of each refrigerator sold rose from \$290 in 1951 to \$312 this year. For ranges the average retail price went up from \$256 to \$274. Home freezer prices, however, remained stable. The average was \$382 in 1951 and \$381 this year.

Refrigerator sales were even far below those of the 1950 period. Sales for the first quarter this year numbered 15,323 units as compared with 29,934 in 1950.

When water is a Headache...



GOVERN AIR EVAPORATIVE CONDENSER

Water supply for air conditioning can cause you a lot of trouble. When there's a shortage; when rates are expensive or when sewage and piping are impractical—water becomes a real headache!

That's when engineers and contractors alike turn to Governorair Evaporative Condensers!

Governair Evaporative Condensers eliminate waste-water disposal

problems and pumping costs. And they're engineered to give maximum efficiency and performance at a reasonable cost. Available in sizes from 3 to 100 tons.

Choose a Governorair Evaporative Condenser and there's no need for aspirin!

GOVERN AIR CORPORATION, 513 N. BLACKWELDER, OKLAHOMA CITY, OKLA.



GOVERN AIR

ORIGINATORS OF COMPLETELY PACKAGED AIR CONDITIONERS

First-Quarter '52 Freezer Sales In Philadelphia Show Smallest Drop

ELECTRIC RANGE SALES—JANUARY TO MARCH, INCLUSIVE, 1952

Month	1952 Units Sold	1951 Units Sold	1952% Inc. or Decrease	1952 Retail Value	1951 Retail Value	1952% Inc. Over 1951	1952 Price	1951 Price
January	1,000	2,320	— 56%	\$290,056	\$ 621,726	— 53%	\$275	\$268
February	1,128	2,395	— 51%	309,541	578,066	— 47%	274	252
March	1,074	4,193	— 75%	296,572	1,056,723	— 72%	277	253
Total	3,202	8,808	— 63%	\$806,169	\$2,256,515	— 60%	\$274	\$256

Note: Report covers sales of the following makes: Admiral, Coolerator, Crosley, Deepfreeze, Estate, Frigidaire, Florence, General Electric, Gibson, Hotpoint, Kelvinator, Kenmore, Lectro-Host, Norge, Philco, Universal, Westinghouse.

Report covers sales in Bucks, Chester, Delaware, Montgomery, and Philadelphia counties.

ELECTRIC REFRIGERATION SALES—JANUARY TO MARCH, INCLUSIVE, 1952

Month	1952 Units Sold	1951 Units Sold	1952% Inc. or Decrease	1952 Retail Value	1951 Retail Value	1952% Inc. Over 1951	1952 Price	1951 Price
January	4,272	14,280	— 70%	\$1,304,827	\$ 4,056,242	— 68%	\$306	\$284
February	6,032	9,366	— 36%	1,947,424	2,728,648	— 29%	322	291
March	5,019	12,185	— 59%	1,539,488	3,639,168	— 58%	307	298
Total	15,323	35,831	— 58%	\$4,791,739	\$10,424,058	— 54%	\$312	\$290

SALES BY PHILADELPHIA ELECTRIC COMPANY

Total	215	502	553	— 58%	\$ 70,123	\$ 166,846	— 57%	\$328	\$332

Note: Utility sales approximate 14% of total sales. Report covers sales of the following makes: Admiral, Astral, Coldspot, Coolerator, Crosley-Shelvador, Deepfreeze, Foster, Frigidaire, General Electric, Gibson, Hotpoint, International-Harvester, Kelvinator, Leonard, Norge, Philco, Universal, and Westinghouse.

Report covers sales in Bucks, Chester, Delaware, Montgomery, and Philadelphia counties.

HOME FREEZER SALES—JANUARY TO MARCH, INCLUSIVE, 1952

Month	1952 Units Sold	1951 Units Sold	1952% Inc. or Decrease	1952 Retail Value	1951 Retail Value	1952% Inc. Over 1951	1952 Price	1951 Price
January	734	1,163	— 37%	\$277,386	\$ 430,338	— 36%	\$378	\$370
February	525	549	— 5%	194,053	208,754	— 7%	370	381
March	618	1,228	— 50%	242,052	483,532	— 50%	392	394
Total	1,877	2,940	— 36%	\$713,491	\$1,122,624	— 37%	\$381	\$382

Note: This report covers sales of the following makes: Ben Hur, Coldspot, Coolerator, Crosley-Frostmaster, Deepfreeze, Frigidaire, General Electric, Gibson, Hotpoint, International-Harvester, Kelvinator, Norge, Philco, Universal, Victor, and Westinghouse.

Survey covers sales in Bucks, Chester, Delaware, Montgomery, and Philadelphia counties.

Eichman, Sander, Price Named to Penn Posts

GOSHEN, Ind.—Robert D. Eichman, George Sander, and E. A. Price have been appointed to new positions with the Penn organization, according to R. H. Luscombe, general sales manager of Penn Controls, Inc.

Eichman, who has been appointed sales engineer in the company's New York district office was formerly engaged in sales and engineering work in connection with equipment installation and is well versed in the application of controls for heating, refrigeration, air conditioning, gas ap-

pliances, pumps, air compressors, and safety controls for engines.

George Sander, formerly sales engineer in the New York district has been appointed district manager.

E. A. Price, formerly manager of the New York district office has been appointed educational director for the company. Price will be assigned to the main office in Goshen and will handle all phases of sales education as well as the training of new sales personnel.

Thoroughly grounded in control application, sales, and sales engineering, Price is a graduate engineer and has been with the Penn company since 1935 in various capacities, both in the field and the home office.

T. S. Fremont To Manage Bendix Chicago Branch

CHICAGO — Appointment of T. Stanton Fremont as general manager of Bendix Home Appliances Sales Corp. here, was announced recently by Judson S. Sayre, Bendix general manager.

Sayre said the Chicago branch will be expanded to include several adjacent counties.

Fremont was previously consumer products manager of Westinghouse Electric Supply Co. here. He had been with Westinghouse for four years. Prior to that time he was merchandising manager for Spiegel, Inc. for four years and before then had spent 14 years with Bloomingdale's in New York City.

Airtemp Making Newest Tank Gun Range Finder

DAYTON — The nation's newest tank gun range finder is being manufactured by the Airtemp Div. of Chrysler Corp., the Army revealed recently.

This advanced device, for use in the M47 medium tank, makes it possible, for the first time, for a tank gunner to "zero in" on the target and make his first shot a hit, it was said.

Carl E. Buchholzer, Airtemp president, said the company has received three multi-million dollar orders for the range finder "because within six months from the time the fire control division of the Army Ordnance Dept. placed the first one, we began shipment."

R. J. Schumann, Airtemp factory manager, pointed out that the operation required more than 100 new machine tools and many precision optical checking instruments. The Airtemp plant had to be rearranged and new employees hired and trained.

To accommodate the additional equipment and personnel, a new 76,000 sq. ft. building was added to the Airtemp factory. The entire program was completed in approximately one year, Schumann added.

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COLUMBUS 1, OHIO



WORLD'S LARGEST MANUFACTURER OF REFRIGERATION CONTROLS

BASIC REFRIGERATION CONTROLS

By Service Information Division,
White-Rodgers Electric Co.

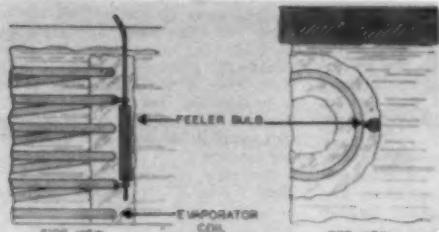


FIG. 23 shows feeler bulb of White-Rodgers ice bank control as installed on spiral coil.

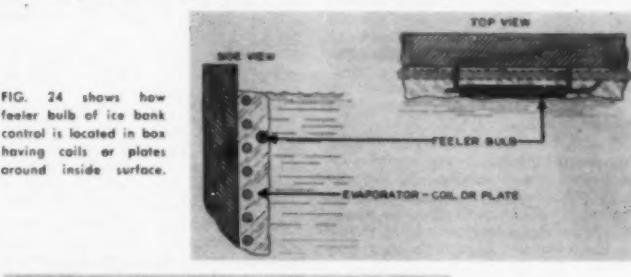


FIG. 24 shows how feeler bulb of ice bank control is located in box having coils or plates around inside surface.



FIG. 25—When ice bank is at bottom of box, feeler bulb is located as shown.

13—Location of Bulb Controls Ice Thickness

In using ice bank controls, the bulb should be so located that it is bracketed to a point that will represent the outer surface of the ice bank. This must be done because the bulb location controls the thickness of the ice bank.

An example of the foregoing is as follows: if an ice bank of 2 in. is desired, the bracket should hold the bulb so that the outer edge is 2 in. away from the evaporator surface.

Fig. 23 shows the installation of the feeler bulb in a cabinet incorporating spiral coiled evaporator, in the center of the fixture and away from side walls.

The ice bank builds up on both sides of the evaporator. The picture shows that the installation of the temperature sensitive bulb is made at the outer surface of the ice bank. If the evaporator is of a square design, the best location for the feeler would be parallel to the coil.

In Fig. 24 we see the feeler bulb mounted parallel to the refrigeration coils. The coils, or plates, may entirely surround the outer wall of the cabinet. Note in the pictures that the feeler bulb location is at the outer edge of the desired thickness of the ice bank.

If the installation demanded that the ice bank be built up near the bottom of the cooler, Fig. 25 would show what we would see if we removed the front of the cooler.

The milk cans, or other products, would be supported on a sub floor and the ice bank would be beneath this floor. Of course, the liquid in the cooler would circulate around the cans, or product, and up through the slats in the design of the floor.

The sensitive element, or feeler bulb, would be located at the top surface indicating the desired thickness of the ice bank.

As previously indicated, the function of the ice bank control is to maintain a desired thickness of the ice bank, and to start and to stop

the condensing unit to supply refrigeration that will maintain the ice bank at a predetermined thickness. This is a relatively easy control to install providing the few simple directions previously indicated are observed. The fact that it is non-adjustable is a very desirable feature. The control is wired in a simple two-wire circuit.

When making the installation of this or any other control, it is always good practice to place the control containing the switching mechanism away from spillage of water or any excess moisture.

(To Be Continued)

Kingerley In Wolverine Midwestern Sales Post

DETROIT—E. J. Campbell, midwestern district sales manager for Calumet & Hecla Consolidated Copper Co., announced the appointment of A. S. Kingerley as his assistant.

Kingerley has held various sales positions with Wolverine since coming with the company over 25 years ago.

In his new position as assistant midwestern sales manager, Kingerley's jurisdiction will cover sales in Michigan, northern Ohio, and a portion of Indiana. His headquarters will be in Detroit.

Bush Dividends Declared

WEST HARTFORD, Conn.—At a regular meeting of the board of directors of the Bush Mfg. Co. it was voted to declare a dividend of 28½ cents per share on the 4½% cumulative convertible prior stock and 31½ cents per share on the 5% non-cumulative preferred stock.



A. S. Kingerley

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COLD PLATES FOR: Ice Cream Cabinets, Soda Fountains, Farm Milk Coolers, Farm Freeze Cabinets, Window Displays, Food Counters, Sub-Zero Applications for Industrial chilling.

M-H Names Robinson Regional Sales Manager

MINNEAPOLIS—John A. Robinson has been named sales manager of the eastern and mid-Atlantic regions for the Industrial Div. of Minneapolis-Honeywell Regulator Co. It was recently announced by W. H. Steinkamp, who is general sales manager.

At the same time Steinkamp announced the appointment of Joseph J. Matulis as industrial manager for the midwest region to succeed Robinson and the promotion of C. G. Behnke to industrial manager of the Chicago branch office.

Robinson succeeds O. B. Wilson, recently named field sales manager, Steinkamp said.

Hart Represents Eston Chemicals In Southeast

ATLANTA—Hart Engineering & Sales Co. here has been named to represent Eston Chemicals, Inc. in the sale of their refrigerants and Charg-A-Can units in West Virginia, Virginia, North Carolina, South Carolina, Georgia, Alabama, Florida, and parts of Tennessee and Mississippi.

Thomas H. Hart has been active in the refrigeration industry for the past 25 years and until recently was employed as chief engineer of the Warren Co. He has been very active in national and chapter ASRE activities and is president of the Southern Regional Association of RSES. Hart is assisted by Louis B. Close and A. L. Keane.

"I went to a sheet metal shop and had them build me a flue out of 18-gauge metal about 14 in. wide and 2 ft. high. The flue was like a box with the front and top open. I had them make a cover for the front with a round hole to accommodate a fan. This hole had a 'lip' on it so that all the air had to go through the flue. The cover was mounted to the flue with six sheet metal screws and the cover had slots in it so the belt could be tightened.

"Of course, a fan was mounted on the motor pulley. This flue was mounted on the frame of the condensing unit. It had a brace from the top of it to the top of the compressor.

"The discharge line was $\frac{1}{2}$ in. but it was changed to $\frac{3}{4}$ in. and went from the head of the compressor back and forth down the flue and then into the water-cooled condenser. No bending tool could make bends close enough, so I used return bends and brazed them on with phosphorus.

"It wasn't hard to understand why because the temperature often reached 120° in the summer. It already had a water-cooled condenser so I had to think of something else. Here's how I solved it.

"I went to a sheet metal shop and had them build me a flue out of 18-gauge metal about 14 in. wide and 2 ft. high. The flue was like a box with the front and top open. I had them make a cover for the front with a round hole to accommodate a fan. This hole had a 'lip' on it so that all the air had to go through the flue. The cover was mounted to the flue with six sheet metal screws and the cover had slots in it so the belt could be tightened.

"Of course, a fan was mounted on the motor pulley. This flue was mounted on the frame of the condensing unit. It had a brace from the top of it to the top of the compressor.

"The discharge line was $\frac{1}{2}$ in. but



"Slants on Service" is a "package" devised by the NEWS to meet the needs of its busy readers in the service and contracting business.

One Answer to Problem Of High Head Pressure

"On a certain job I had difficulties because the high pressure over-load would trip and stop the machine," recalls one reader.

"It wasn't hard to understand why because the temperature often reached 120° in the summer. It already had a water-cooled condenser so I had to think of something else. Here's how I solved it.

"I went to a sheet metal shop and had them build me a flue out of 18-gauge metal about 14 in. wide and 2 ft. high. The flue was like a box with the front and top open. I had them make a cover for the front with a round hole to accommodate a fan. This hole had a 'lip' on it so that all the air had to go through the flue. The cover was mounted to the flue with six sheet metal screws and the cover had slots in it so the belt could be tightened.

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"A water line was run from the condenser to the top of the flue where it was discharged through a bunch of small holes that had been drilled in it. The fan on the motor did the rest and I never had any more complaints from high head pressure."

Making Reeds for 'Orphans'

If you happen to run across an "orphan" that you can't get reeds for, you might try this. Get the reed that looks the most like it and with a hand grinder proceed to make a reed. It is a lot of work, but it is one way out.

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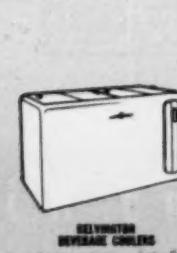
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KELVINATOR OPEN TYPE CONDENSING UNIT (1/8, 1/4, 1/2, 1 H.P.)

Automatic Defrosting

Advantages and Problems of Popular New Features Aired by Household Engineers in All-Day Conference at ASRE Spring Meeting

AUTOMATIC DEFROSTING in household refrigerators may be something less than perfect, but it's also "the most powerful sales tool developed in years," "the greatest factor in creating obsolescence," and improves efficiency so much that the refrigerator with it actually costs less to operate.

These were some of the views expressed at the all-day Domestic Refrigerator Engineering Conference held during the 39th spring meeting of the American Society of Refrigerating Engineers at Atlanta. Highlights of the conference are presented in the accompanying article.

By C. Dale Mericle

ATLANTA—In 25% of the cases

women are apparently satisfied with automatic defrosting, but the other 25% are less happy," declared Miss Willie Mae Rogers, director of home economics for Admiral Corp., at the Domestic Engineering Conference held during the 39th spring meeting of the American Society of Refrigerating Engineers at the Biltmore hotel here.

She was one of 10 speakers discussing various aspects of automatic defrosting for household refrigerators at the conference chairmanned by Charles Harris of International Harvester Co., and spoke on "Customer and Dealer Reaction to Automatic Defrosting."

Personal studies and surveys also show, Miss Rogers said, that "dealers consider automatic defrosting the most powerful sales tool developed

for household refrigerators in years."

But the complaints made by the minority group of users, and echoed by servicemen and home service women, hit at the formation of icicles on the evaporator and the freezing together of frozen food packages, she declared.

"The customer makes her first mistake when she neglects cleaning the refrigerator," explained Miss Rogers. "Engineers, however, are generally inclined to suggest 'consumer education' as the remedy through the sales presentation, instruction books, and home demonstration."

"There are still good salesmen in the country today, but they are few and far between. And the average salesman is afraid to risk a sale by going into too many details, such as the necessity for cleaning refrigerators. You must remember that

women are apt to be literal-minded, so when they're told that defrosting is done automatically, they assume it will require absolutely no attention on their part. No, you can't depend on the sales presentation."

"As for instruction booklets, they are very carefully prepared, but you know what happens to them. Either the booklet is taken out of the refrigerator on the sales floor or 75% of the customers put them away without reading the instructions," Miss Rogers stated.

"Home demonstration after the sale is very effective, but you know that we don't get 100% coverage on that."

"Women say, 'just make the water drain off better,'" Miss Rogers told the engineers. "I've been told that automatic defrosting is in the model T stage, but you can't advertise that today."

Commenting that one of the complaints was the "off" taste of ice cubes, Miss Rogers said that "there are so many fine features in refrigerators today we forget that customers are still very interested in ice-making—not in the speed but the taste, etc."

One other speaker at the conference, J. R. Hornaday, chief engineer of Norge, offered photographic evidence and support to Miss Rogers' views, stating that "the true value of

high-speed defrosting is still a question in my mind."

The conference, however, was opened with a general discussion of automatic defrost methods for household refrigerators presented by C. F. Alsing, manager of product research for Seeger Refrigerator Co.

"At this time there are two general types in use," he said. "The first of these covers systems which circulate refrigerant through the evaporator as a means of distributing heat to defrost. The second type applies the heat externally to the evaporator to be defrosted."

Under these two general types, Alsing listed four methods using refrigerant for circulating heat, and two employing externally applied heat.

The first system achieves defrost by adding heat from an electric heater plus additional refrigerant at the start of the defrost cycle. The combination raises the suction pressure above the melting point of the frost. The unit operates during the defrost cycle.

Similarly, the unit operates during the defrost period in the second system described by Alsing—the hot gas type. This employs a solenoid-controlled bypass which permits warm gas from the compressor to condense in the evaporator, thus melting the frost.

In the third system, called the "jet" type, Alsing explains, "a heater is placed on the bottom of the evaporator and circulation through the evaporator, according to the manufacturer, is stimulated by a jet of gas and liquid coming from the inlet tube. Refrigerant flows up through the evaporator from the bottom shelf to the top and then into the header from which it returns to be recirculated." The compressor does not run during the defrost cycle.

"A fourth type utilizes a heater combined with the natural circulation principle of a steam heating system," he said. "In this system the compressor is shut off when defrosting is initiated. Heat is applied to a vertical tube. This tube and heater are located in a recess in the rear of the liner and covered so that the heater is inaccessible to the housewife when cleaning the refrigerator. The vaporized liquid rises and circulates throughout the evaporator where it condenses and returns to the loop to be re-evaporated until the defrosting is complete."

There are two types of systems using external heat, according to Alsing. One uses heaters "distributed over a substantially large part of the surfaces to be defrosted." The other also uses heaters but these

"are removed from the evaporator and backed up with reflectors so that heat reaches the frost by radiation and convection."

Both of these methods, he said, involve heaters with wattage ratings "considerably above" those used in the first systems.

Regardless of the defrost method used, the cycle must be started and stopped. To initiate defrost, Alsing explained, several methods can be used. One of the simplest is to use a pushbutton, but while it permits the housewife to choose the time for defrosting, it requires her to remember to start it.

Counting the door openings is a second system being used. This requires no clock. Somewhat similar is another method which is based on the length of time the door is opened and operates in parallel with the cabinet light switch.

A 24-hour clock which defrosts the refrigerator every night is used by several manufacturers.

"This type," Alsing said, "has the advantage of melting the frost during the time the cabinet is not being used, but has the disadvantage of requiring that the clock be reset to compensate for power interruptions."

As for stopping the defrost cycle, "one of the most obvious and most popular means is to use a temperature sensitive element to terminate this cycle when defrosting is complete and re-establish the refrigeration process."

"Where clocks are used, the usual method is to stop defrosting at the end of a pre-set time limit as a safety measure with the temperature responsive device terminating the cycle ahead of the time limit as soon as defrosting is completed."

Another consideration with automatic defrosting is disposing of the defrost water. The simplest type, Alsing said, is a manually removable dish, but this "requires some attention and if unobserved or uncared for over a period of time, can overflow." Other types deliver water to a pan in the unit compartment where the water evaporates with the assistance of the unit fan, electrical heater, or by natural convection plus heat from the unit.

That automatic defrosting has brought with it several problems was acknowledged by Alsing, who summarized these:

The design must be balanced "to adequately defrost a pound or more of frost in the humid season and the very light coating collected in dry seasons."

Re-freezing of defrost water in

(Concluded on next page)

WE HAVE WHAT YOU WANT . . .

For years the industry looked for an automatic

defrosting system for temperatures below 32° — and

from the KRAMER Laboratory came the wanted answer . . .

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too low during running cycle . . . the Series 275 stops compressor operation *automatically*. Then the fault can be corrected before damage occurs.

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FOR HEATING, REFRIGERATION, AIR CONDITIONING, PUMPS, AIR COMPRESSORS, ENGINES, GAS RANGES

Automatic Defrosting--

(Concluded from preceding page)
drain pans or tubes leading to disposal area.

Protection against overheating where heaters are used in the event switches fail to cut off the heat supply.

Good door seals must be maintained to avoid excessive frost accumulation.

Acquaint Customer with Proper Care

"As in all new devices it is wise to acquaint the customer with the proper care of the apparatus, particularly under unusual conditions," Alsing declared. "It would seem well to emphasize the need of frequent cleaning of the cabinet and freezer interior in spite of the fact that the defrosting may go on for months without attention. The accumulation of spilled food products and condensed vapors in the freezer and ice trays should be removed to provide cleanliness."

Among the things that customers desire in automatic defrosting, according to Alsing, are provision for the user to start or stop the defrost cycle manually; readily accessible and "simple-to-operate" controls; placement of heaters so there is no danger of getting burned during the cleaning process; an indicator to show when defrosting occurs.

The second speaker at the Domestic Conference—S. J. Williams of International Harvester Co.—presented "Energy Equations for Five Defrost Systems," based on the outline given by Alsing.

Although the pressure-enthalpy diagrams and the equations he described were admittedly somewhat involved, Williams asserted: "This type of analysis should be used more generally in designing and testing defrost systems."

"It gives even the test engineer a 'picture,' as it were, of what's going on in the system."

Design of controls for automatic defrosting of household systems was outlined by R. G. Raney of Ranco Inc., the third speaker, who briefly traced their history from the manual type introduced as long ago as 1930.

Too Accurate Settings Not Possible

In discussing present-day controls, he cautioned that the gases used don't have much power and thus "too accurate a setting" can't be obtained.

These controls are also more sensitive to altitude changes than the conventional household control, so this factor must be taken into consideration to obtain satisfactory results," he suggested.

The noise of timer motors and gear trains can also be a problem, he indicated, as can the heat from the timer motor.

"Timer motor heat can be used, however, to warm the element in cross-ambient conditions," Raney said.

A problem cited by several speakers—that of proper run-off of the defrost water—may find its answer in a new finish called "Teflon," which O. J. Spaw of du Pont briefly described at the conference in the next talk.

This, he said, is a new plastic finish which can be sprayed over conventional organic finishes used on evaporators and then baked at approximately 350° F.

"It gives maximum water run-off," he declared. "Good results are obtained with this on aluminum, although the latter has to be treated first. Care will have to be taken in using Teflon on plastics because of the temperature required for baking."

According to Spaw, Teflon has been used to considerable advantage by bakers for coating of their baking pans to insure the baked goods being released by the pans properly after baking.

"Bakers can get 2,000 or more bread 'releases' with Teflon," he said.

In outlining the general problem of water run-off, Spaw pointed out that the surface tension and viscosity of water increase as the temperature goes down, thus complicating the problem for automatic defrosting.

Afternoon session of the Domestic Conference was devoted to description of defrost systems employed in specific makes, but the various speakers also commented on some of the design and operating problems involved.

J. R. Hornaday, chief engineer of Norge, for example, pointed out short-comings of high speed electric defrost systems, "which have not overcome all the objections of the old methods and have brought some new problems with it."

"Norge," he emphasized, "is not the only one that has these problems. We've had all makes in our laboratory for test and we know what happens to them."

"One of the problems is the dripping of water from the top section of the evaporator during the defrost cycle and then the re-freezing. There's one solution," suggested Hornaday with tongue-in-cheek. "Get the present administration to pass legislation changing the Law of Gravity."

Problems In 1951 Models

Pointing out that his talk had been prepared some months previously and was based on 1951 models, Hornaday reviewed Norge experience with its original defroster which involved an electric clock with a cam and switch to cut the circuit. While turning off the system for a certain number of hours did permit defrosting, Hornaday said, "it was not too good for ice cream and frozen foods stored in the evaporator."

The high-speed defrosting method he next described employs a 350-watt electric heater clamped in place between two passes of the flooded evaporator. Heated refrigerant first warms the bottom shelf and passes the heater again before going to the top portion of the evaporator. When the temperature rises high enough, a thermostat stops the defrost cycle. The thermostat, he explained, is in series with the heater element and a solenoid, and when the thermostat is satisfied, the heater is cut out and the compressor started.

Contaminated Ice Cubes

In addition to the problem of ice formation due to automatic defrost, "ice cubes become contaminated after the first defrost cycle," he declared. "The cubes and the trays are much colder and the difference in vapor pressure forces moisture to collect on these cold surfaces."

"With higher temperature evaporators we wouldn't have this frost problem, but the refrigerator wouldn't hold the food properly. Further, it would be wise to go back to the 20 to 25° evaporator of 15 years ago?"

"Drainage has been a problem in all makes," asserted Hornaday. "Norge has used various methods and materials, but the last few little drops of water don't run off. These freeze and accumulate as the defrosting cycles continue, and eventually have to be cleaned out."

Cabinets, however, are defrosted at night, so the housewife neglects to clean out the refrigerator regularly."

Basic Parts to Automatic Defrost

Defrost system employed by Westinghouse was described next by Milton Kalischer, who reminded the group that "there are three basic parts to an automatic defrost system: (1) frost removal, (2) control, and (3) drain arrangement."

He then outlined the "design requirements" established by Westinghouse for each of these.

Frost removal should be "rapid enough to limit the temperature rise of the refrigerator; require no valves; should involve nothing that might increase the rate of failure which couldn't be changed in the field, and must be applicable to any evaporator shape."

"In the design of the control, it is highly desirable to couple the defrost interval to the need; no clocks should be used if possible because our experience with clocks is not good (sure, they'll run five or six years, but that's not good enough for refrigerators); the control should turn off the heat if the control fails, but that is not a consideration in our design."

"Water removal should be entirely automatic, and if possible use of a heater in the water evaporating pan should be avoided," he said.

Defrost cycle on the Westinghouse system is initiated by a control which counts the number of door openings while a thermostat ends the cycle.

Some basic consideration for automatic defrosting were cited also by R. W. Ayres of Seeger, who declared that "defrost systems shouldn't interfere with normal operation of the refrigerator. They should be time-initiated and temperature-controlled. You also need a timer limit to cut in the unit if the thermostat should fail. Easy cleanability of the water drain system is essential."

On the subject of "semi-automatic" defrosting, which had been mentioned once or twice earlier in the conference, Ayres commented:

"You might look upon this term the same as 'semi-pregnant.' You either are or you aren't."

Crosley's views on automatic defrosting were presented by Walter Kuenzli in a paper which he and A. J. Pfeiffer had prepared.

12 Engineering Objectives

"Periodic manual defrosting has always been an annoying nuisance," he declared in introducing the dozen engineering objectives Crosley had worked to. He listed these as follows:

1. Low manufacturing costs.
2. Carefree drain design.
3. Sealed chest type evaporator.
4. Complete defrosting of all surfaces.
5. Dependable performance.
6. Convenient initiating time and simple manual defrost.
7. Minimum duration of heating cycle.

8. Immediate restoration of refrigerating cycle.
9. Minimum temperature rise.
10. Rapid temperature recovery after defrosting.
11. Adequate safety devices.
12. Low operating costs.

Direct Electric Heating System

"The time clock," Kuenzli said, "permits selecting the most convenient time for defrosting, and we have concentrated on designing automatic defrosting for the horizontal type evaporator. We use the directly applied electric heater system with the heating elements directly attached to the evaporator—top and bottom—the drain pipe, and the drain water pan at the bottom."

"Perfection of design details eliminates most of the problems, we have found," he declared.

As an example, he explained that "two loops of the heater coils drop down from the bottom of the evaporator and contact the top of the baffle plate below. This arrangement melts the chunks of ice that fall off the evaporator."

On the problem of insuring that the defrost water would be properly evaporated, Kuenzli said, "it was found that in a 90° F. room at 50% relative humidity, the pan could evaporate 18 oz. of water a day. However, we found that only 12 oz. of water collects in the pan after defrosting. The pan itself is large enough to hold 64 oz. so we have no problem here."

In the control setup Crosley employs a safety thermostat which turns off the electric heaters if the defrost thermostat doesn't terminate the cycle, and there is also a safety

bellows in the main control, he explained.

"As for temperature rise, a check during a typical defrost cycle shows that although the air temperature rose from 10° to 40° F. within the refrigerator, the temperature of frozen foods in the evaporator rose only 2½°—from 9° to 11½° F. Kuenzli said.

Use 700 Watts for 12 Minutes

Operating costs were cited, too, by Kuenzli, who commented that "the 700 watts that we use sounds like a lot of heat, but the defrost cycle lasts only 12 minutes. And using 700 watts for 12 minutes, even at 3 cents per kWhr., costs only 12½ cents a month."

"However, the operating efficiency of the refrigerator is increased so much by the regular automatic defrosting that the over-all cost of operation is 2½ cents a week less, including the cost of heating."

The problem of ice cubes becoming "contaminated" as a result of automatic defrosting is dismissed by Kuenzli with the statement that "ice cubes and frozen foods aren't kept too long in the average refrigerator—only a few days or at most a week."

"Automatic defrosting, however, constitutes the greatest factor in creating obsolescence in the household refrigerator."

International Harvester's defrost system, which employs electric heaters and a time clock, was outlined by H. R. Ball to conclude the conference. This system is generally similar to the others previously described, it was indicated. Ball pointed out that "water drainage is good but not perfect, and the formation of icicles is held to a minimum."

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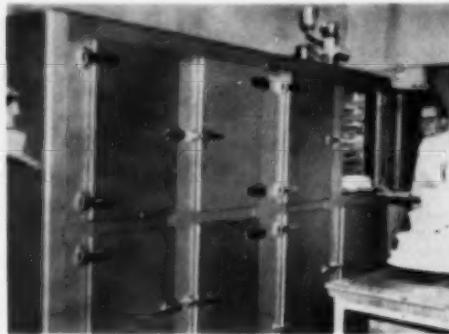
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- 3. **Long Life**—Cast Coils.
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- 5. **Opening Pressure Differential**—Higher than most others on the market.

May we submit samples for your test and inspection?



REFRIGERATED CASE easily seen from window handles whipped cream specialties. Retail salesroom is fully air conditioned.



NEW 4-SECTION, 8-door freezer, "the answer to a retail baker's dream," helps Forrest Coffman, owner of the bakery, to eliminate daily stale.

Small Bakery Is Big Business

Refrigeration, Air Conditioning Convert One-Man Operation Into Large Volume, 20 Helpers; Overcome Space Problem

LINCOLN, Neb.—The use of modern refrigeration equipment and air conditioning to boost sales in a retail bakery has been illustrated here by the Coffman Bakery, operated by Mr. and Mrs. Forrest W. Coffman.

Most recent installation was a four-section, eight-door Federal freezer which will hold 112 pans and which Coffman declared is one of the best investments he ever made.

The small downtown bakery has gained the reputation of having more modern equipment for its size than any bakery in Nebraska, and the proprietor pointed out that his mechanized system of operation speaks

for itself. When he and Mrs. Coffman took over the 20 x 75-ft. shop back in 1947, it was strictly a one-man operation. The new owners immediately remodeled, installed air conditioning and began adding modern equipment, so that today the bakery employs 14 persons full time plus six part-time helpers in the salesroom.

Refrigeration has been the "open sesame" to increased quality production in small space, said Coffman. With six bakers and two helpers he is now able to produce baked goods of an infinitely greater variety than when he took over the shop. While monthly sales have increased

greatly he hesitates to cite figures because the astronomical gain would appear unbelievable.

The new freezer is the fulfillment of the retail baker's dream, in the Lincoln baker's opinion. It has eliminated the 10 to 15% of daily stales that accompanied conventional operation, prevented shortages, permitted much greater variety, made for better hours and less work, and definitely increased profits.

The big box enables the bakery to have items on hand in sweet goods and cake lines at all times to meet potential sales without the worry of bad weather, etc., cutting down traffic

and leaving him with a lot of stales, Coffman explained. Instead of making up a lot of small, costly batches to provide variety, he can make up enough to last several days and draw out what he needs from day to day without loss through spoilage.

Special Order Business Grows

It has proved to be a great advantage in handling whipped cream goods, and Coffman's now can keep different sizes and types of cake on hand so that when a special order is received, the cake need only be defrosted and the icing added. The bakery has built up an enormous business in birthday, wedding, and other special order cakes.

Coffman warned against trying to use a retarder type of refrigerator for frozen bakery products operation. Unpackaged frozen products, baked or unbaked, are frozen and stored in a temperature ranging from 10 to 15° F. For this, a low temperature box is required with at least four inches of cork on all sides or equivalent insulation. The box should be engineered to attain and hold at least a 0° F. temperature in order to assure top performance under weather conditions.

One of the most profitable features of Coffman's new freezer is that the front room help can slip back to the big box near the end of the day, if some item is needed, put a few pans in the oven, and thereby chalk up sales which otherwise would have been missed. The freezer system also assures fresh products and such service builds up word-of-mouth advertising and repeat business, whereas formerly Coffman's had to count on 10 to 15% of the production being lost to stales in order to keep a good supply and variety on hand for the entire day.

Freezer Box Is 'Insurance'

Coffman believes that in the not too distant future, the freezer will be as important to the progressive retail bakery as the retarder box, oven, or mixer is now. It enables the retailer to store part of his contemplated sales as insurance against having any merchandise left. If unpredicted bad weather comes along after the production has been completed for the day, surplus products can be placed in the freezer immediately without financial loss.

He also pointed out that the successful baker always bakes the top amount he figures he might sell for the day, and this merchandise always must be produced ahead of time, or with a certain degree of speculation. With the freezer, these products can be drawn upon as needed, thus eliminating the former gamble. Still another very important advantage of the freezer is the fact it allows almost unlimited variety every day, and furthermore assures complete lines even at the close of the selling day.

Advantages of the freezer are not limited to the sales field, the bakery owner added. The freezer takes away rush hour problems for the backroom

help, thus eliminating the cost of an extra man. It allows full production with larger batches so the bakery can bake early in the week for the weekend rush. It also cuts down night work.

Coffman has found he can start baking 12 hours ahead of the normal fresh period and still supply his customers with fresh goods, thanks to the freezer. Coffman's has opened leased retail outlets in two Lincoln supermarkets in recent months, and the freezer has enabled the bakery to supply the needs of these departments with the same full service afforded in the downtown retail salesroom.

Unbaked yeast goods can be made in advance, while a small amount of baked goods can be made a day ahead for the early hour sales. This allows the bakery to bake later with the added advantage that the freshly baked goods come out later and closer to the time of sales.

Baked Cakes Improve

In Texture

Cakes already baked have been found to improve in texture and retain all their goodness when stored in the freezer. Butter-cream types of icing can be placed in the freezer immediately, but in handling cakes with the fondant type of icing, it has been found advisable to refrigerate the cake without the icing, especially in warm, humid weather. The frozen cakes are always defrosted before icing. Whipped cream filled cakes keep perfectly in the freezer.

Where sweet yeast goods are concerned, Coffman's has found it can use the freezer operation on nearly all the unbaked goods, without changing the formula. Danish doughs, for example, are handled in the conventional manner, and these can be frozen at any stage. The sweet rolls or coffee cakes are placed on pans or in individual tins, the same as before the freezer was employed, but the doughs to be refrigerated are not washed or topping added. The latter operations are applied after the doughs are removed from the refrigerator and defrosted.

Straight doughs are handled the same as the Danish until they are made up, but they are not placed in molds. Straight doughs are placed on pans (it helps to place a flour sack over them) and frozen in this manner only. They also are washed and topped after defrosting because a nicer appearing product is thus obtained.

Since the frozen yeast goods color more during baking than the unfrozen, it has been found advisable at Coffman's to use a leaner egg wash. Proofing, also, is used more sparingly, especially on the frozen straight doughs, because they have more "spring" in the oven than the unfrozen products.

Small Oven for Defrosting

A frozen baked piece of yeast goods can be ready for sale after two to five minutes in the oven, depending upon the temperature, be-

(Concluded on next page)

THE FINEST REFRIGERATION LUBRICATING OIL at any price!

The NEW IMPROVED All-Temperature Refrigeration Oil — is sold exclusively by leading refrigeration wholesalers everywhere.

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Freezer Cuts Loss, Permits Special Service

(Concluded from preceding page) cause the product is only defrosted and not heated, since the latter would tend to dry it. A small oven teamed with the freezer has been found to be a big asset for quick defrosting. With this team, frozen goods can be placed in the sales cases in less than 10 minutes.

Thanks to the new freezer operation, Coffman's now has increased its daily variety of special breads and rolls for which the doughs are scaled into proper size, rounded up and frozen. They also can be frozen after baking with no sacrifice of quality. Unbaked pies have been found to freeze perfectly and they can be baked while in the frozen state. Cream slice strips, cream horns, and patty shells have seemed to improve with the freezing. In dealing with the latter items, however, the baker warned against filling them with either the custard or the meringue before freezing.

Wide Variety of Equipment

Other equipment employed at Coffman's includes a two-section Federal retarder refrigerator that is used for angel food cake and cookies; a combination walk-in-and-retarder with a two-section retarder and one-section walk-in for eggs, yeast, and ingredients; Wagner pan washer; homogenizer for whipped cream; Dutchesse automatic bun roller, plus the usual array of ovens, mixers, and proofer.

The bake shop is 20 x 50 ft. and the salesroom 20 x 25 ft. There is a basement for raw material storage, and small balcony over the sales room for an office.

Mrs. Coffman has organized the sales system into an efficient unit. In addition to supervising sales, her specialty is taking special orders and cash, using a triplicate machine to write orders. A feature of the bakery is a special order room, off the sales room, where shelving in alphabetical order holds the special orders. This has become a big operation, which

keeps one girl busy full time on Saturdays, and two girls on holidays and special days.

The sales room is air conditioned. A 3-ton Chrysler Airtemp packaged unit is housed in the special order room, with ductwork serving the sales area.

The salesroom is equipped with blonde-wood display cases, wall shelving, and woodwork. Included is a matching Selb refrigerated display case for cakes and cream-filled goods, which has been instrumental in more than tripling the sales of these items over a year's time. Asphalt tile flooring, acoustic ceiling, fluorescent lighting and full-view glass front add to the attractiveness of the department.

Display Window Is Thermopane

The display window is equipped with Thermopane glass to prevent fogging in cold weather and provide better insulation for the display compartment. Sliding glass panels on the back of the display window make for better sanitation without obstructing the view of the interior from the street.

Coffman is so pleased with his freezer operation that he would recommend it to any retail bakery proprietor. In addition to the many benefits his bakery has derived from it, he pointed out that the freezer is to the retail baking field what the self-starter was to the automobile.

Nowadays, he pointed out, workers are demanding shorter hours and more pay, materials cost more so that the waste of past years can no longer be condoned if the bakery is to operate profitably; and the public is demanding more service and better products. The freezer provides a solution to all those problems, in Coffman's opinion.

5 Representatives Named For Alpha Test Cabinets

DETROIT — Five representatives for its line of low temperature cabinets for laboratory and industrial applications have been appointed by Alpha Electric Refrigeration Co. here, announces John C. Bell, general manager.

Garlock Sales Co. of Lansing, Mich., has 18 counties in central Michigan. In the eastern half of Ohio Alpha is represented by Davey Sales Co., Akron, parts wholesaler headed by Elmer Davey. The J. H. Llewellyn Co. of Pittsburgh, manufacturers' agent, is covering the western half of Pennsylvania.

Two representatives divide the east. Part of New England and all of New York state except New York City are being served by Carl Stewart, who headquarters in Syracuse.

New York City, the state of New Jersey, and the balance of the New England territory are covered by David Snow from Maplewood, N. J. Snow is also vice president in charge of sales for the Heatron Co. of York, Pa.

C. M. Heathman Represents Servel Div. In Southeast

EVANSVILLE, Ind. — Charles M. Heathman has been named southeastern sales representative for the electric refrigeration division of Servel, Inc.

O. J. Dail, assistant vice president and general manager of the division, who announced the appointment, also said that Heathman's territory will include the states of Maryland, West Virginia, Virginia, North Carolina, South Carolina, Georgia, Alabama, Florida, and sections of Delaware, Pennsylvania, Ohio, Kentucky, and Tennessee.

After graduation from the Oakland City, Ind. schools, and later Evansville college, Heathman joined Servel in 1935 as an assembler, and shortly after became an inspector. At the close of World War II, Heathman returned to Servel to work in the engineering and production departments, and in 1949 was appointed field service representative for the electric refrigeration division.

To Cool New Office Bldg.

GREENSBORO, N. C.—S. and E. P. LaRose have begun construction of a \$50,000 office building at 602-604 Battleground Ave. which will be air conditioned. The building will contain 10,000 sq. ft. of floor space.

Trane Promotes Conner, Knowles In Sales Dept.

LA CROSSE, Wis.—Promotion of two sales department members was recently announced by Thomas Hancock, vice president of The Trane Co. here.

C. R. Conner has been appointed general sales department assistant in charge of jobber sales. Conner is a 1946 graduate of the Trane student training class and the University of North Dakota.

R. S. Knowles will handle gas unit heater sales, in addition to his regular duty as manager of hot water specialties sales. A greatly enlarged sales program on gas units will be ready for announcement in the near future, according to Knowles.

Knowles has been with Trane since 1947. He was formerly with the Detroit sales office of Ingersoll-Rand Co. and is a graduate of the University of California at Berkeley.

Wolcott Elected Chairman Of Buffalo ASRE Section

BUFFALO — The Buffalo Section of the American Society of Refrigerating Engineers installed Bliss K. Wolcott as chairman at a joint meeting with the Toronto Section May 1 in the Park Lane. Other new section officers are:

First vice chairman, Robert J. Heas; second vice chairman, Reuben E. Ott; secretary, Ralph W. Talley; assistant secretary, Robert H. Meyers; treasurer, James S. Hickok; national director (three years), Harold W. Whiting.

The sections toured the River Rd. plant of du Pont in the afternoon.

Carrier 12-Month Net Profit Drops, But Earnings Before Taxes Rise

SYRACUSE, N. Y.—Net profit of Carrier Corp. for the 12 months ended April 30, 1952, was \$3,900,079 or \$4.26 per common share, as compared with \$4,470,360 or \$4.90 per common share for the preceding similar period.

The 1951 figures have been adjusted to reflect retroactive increases in income tax rates. Earnings per share in both periods are based on the number of shares presently outstanding.

Before income and excess profits taxes, earnings were \$10,932,750 during the 12 months ended April 30, 1952.

The comparable figure for the corresponding period a year earlier was \$10,576,360. Taxes on income amounted to \$8.12 per common share versus \$7.05 in the prior 12 months.

Completed sales totaled \$85,044,351 and new orders were booked in the amount of \$74,973,152. The comparable figures for the 12 months ended April 30, 1951, were \$76,586,570 and \$87,888,077 respectively. On April 30 last, the corporation had a backlog of unfilled orders of the normal type amounting to \$34,779,128 as compared to \$44,434,022 a year earlier.

The above bookings and backlog figures are exclusive of the unshipped portion of government contracts for equipment unrelated to Carrier's normal production, which totaled more than \$50,000,000 on April 30 last.

"The nationwide shortage of ma-

chine tools continues to interfere seriously with the execution of our major defense contracts," Cloud Wampler, president of Carrier, stated.

"This is especially true of the contract for jet engine parts to which a new factory building, completed early in 1951, was assigned. Regarding tank hauls, deliveries commenced in February and are continuing at an increasing rate."

Wampler said that "in the year ended April 30, new high records were established with respect to completed sales and earnings before income and excess profits taxes. But net earnings declined due to substantially higher tax rates."

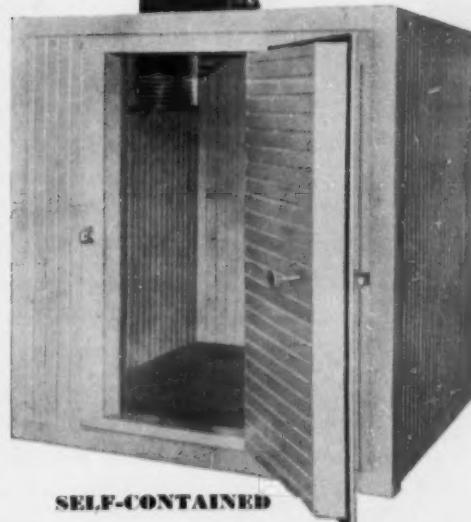
I-H Names Seacord to Research Supervisory Post

EVANSVILLE, Ind.—W. H. Seacord, mechanical engineer for International Harvester's Evansville refrigeration plant, has been appointed assistant general supervisor of mechanical engineering research for the entire Harvester organization, Paul F. Schreiber, Evansville works manager, announced recently.

Succeeding Seacord as mechanical engineer at the refrigeration plant is J. E. Novak, formerly superintendent of M-1 rifle production for Harvester. J. P. Fitzpatrick, formerly assistant plant engineer, has been appointed to the post vacated by Novak.



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Built in Sections (shipped knocked down).

Door Installed at Factory. Automatic Type Door Latches. Sidewall Section Joints Offset at Top and Bottom Insuring Positive Rigid Construction.

All Sections Vapor Sealed with Heavy Non-odorous Water-proof Insulating Paper.

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- 4. Double Duty Self-Service Cases
- 5. Milk Cases
- 6. Beverage Coolers
- 7. Direct Draw Boxes
- 8. Frozen Food Cabinets
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Refrigeration Problems and their solution

by Paul Reed

For Service and Installation Engineers



Paul Reed

Two-Temperature Refrigerators (1)

As mentioned in the series on automatic defrosting, the interest in defrosting in recent years has been brought about mainly by the increased use of frozen foods, and the need to provide for their short time storage in the family refrigerator. To those families that own both a home freezer and an ordinary refrigerator, the problem of defrosting is less acute; in fact, may be of minor consequence.

The freezer is rarely, if ever, defrosted intentionally at least and any frost that does accumulate on its evaporator, which is usually in plate form with flat surfaces, can be scraped off occasionally.

9 AND 10 IN SAME CABINET

Except for ice cubes and frozen foods, the kitchen refrigerator has no need for a frost building evaporator. It could be equipped with a commercial type finned evaporator either with blower or gravity circulation, and operated on the ordinary

defrost cycle, with complete defrosting performed after each refrigerating cycle by means of a pressure or temperature control set to require the evaporator to warm up to an above-freezing temperature (usually about 35°) before the machine starts. In fact, this has the advantage of maintaining higher humidities in the refrigerator, and causing less drying and shrinkage of the fresh foods.

The problem therefore arises from the fact that the present-day refrigerator is compelled to serve as a combination freezer (at least to store frozen foods for short periods) and to make ice cubes, and a normal temperature refrigerator for storing fresh foods, dairy products, cooked leftovers, etc.

It must in effect be a two-temperature refrigerator, and the defrosting problem is a direct consequence of the economic desire to make one cabinet, one machine, and one evaporator serve both the frozen foods at 0° to 10° and the fresh foods at about 40°. In commercial refrigeration, we would never attempt such an inefficient combination.

It is undeniable that most of the troubles attendant on automatic defrosting of household refrigerators have their origin in the basically un-

TWO SEPARATE SYSTEMS IN ONE CABINET

The most simple and direct approach to the problem of two temperatures in one cabinet, is to build both the freezer and the refrigerator into one cabinet, but keep them entirely separate; that is, two separate compartments each with its own doors, its own evaporator, its own condensing unit, and its own control systems.

In many respects, this is the ideal way to build a two-temperature refrigerator. Each machine is selected for the most efficient and economical operation. Each evaporator is designed for maintaining the minimum temperature difference, and consequently optimum humidity conditions are obtainable.

The control system for each system can be simple and comparatively trouble-free. Another advantage is that each system can use a refrigerant best suited to its evaporator temperature, such as "Freon-22" for the

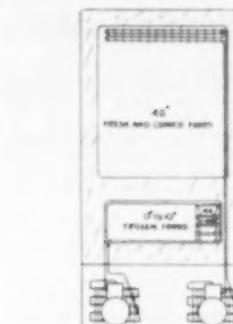


FIG. 1—Two-temperature refrigerator; two separate compartments, two machines, two evaporators.

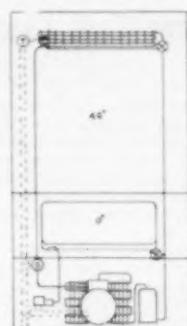


FIG. 2—Two-temperature refrigerator; two separate compartments, two evaporators, one machine.

freezer and "Freon-12" for the refrigerator.

The disadvantages of two separate systems in one cabinet lie chiefly in first cost. The first cost of such a two-temperature cabinet is high, and probably non-competitive. Nevertheless, some of these two-machine jobs have been built, and are giving excellent performance, and are probably the cheapest in the long run.

ONE MACHINE: TWO EVAPORATORS

Naturally, the first step in reducing the first cost of a two-temperature, two-machine, two-evaporator system is to eliminate one of the machines, for this is where the biggest cut in original cost can be made; and to operate the two evaporators on one machine. This is where the complications start.

The evaporator in the freezer compartment must be maintained at 0° or lower, corresponding to an average evaporator pressure for "Freon-12" of about 4 p.s.i.g. or less.

The evaporator in the refrigerator compartment should be at about 25° corresponding to an average evaporator pressure of about 24 p.s.i.g. for "Freon-12."

In commercial refrigeration it is rarely considered advisable to operate two evaporators on the same machine if the two evaporators are to be maintained at temperatures more than 10° apart. The machine is forced to operate at the low suction pressure corresponding to the low temperature evaporator, and it is therefore always operating at a reduced capacity and efficiency, as far as the higher temperature evaporator is concerned.

But if we are to use two evaporators on the same condensing unit, with one evaporator at say 0° and a pressure of 4½ p.s.i.g., and the other evaporator at 25° and a pressure of 24 p.s.i.g., some provisions must be made to maintain these evaporator temperatures and pressures.

As every service engineer knows, any attempt to operate two or more evaporators at different temperatures on the same machine is beset with difficulties and it cannot be truthfully said that there is any means of doing this that is fully satisfactory.

THERMOSTAT AND SOLENOID CONTROL

Perhaps the most nearly satisfactory way is to use a solenoid valve in the branch suction line from the higher temperature evaporator, and actuate it with a temperature control responding to the high-temperature evaporator or the refrigerator air; and then control the machine operation with a low pressure control, which therefore controls the temperature of the evaporator in the freezer compartment.

A check valve should be placed in the branch suction line from the low-temperature evaporator in the freezer.

The normal sequence of operation of such a system is:

1. The temperature in the refrigerator rises until the thermostat opens the solenoid valve. The higher pressure causes the low pressure control to close and start the machine.

2. The machine operates, refrigerating both evaporators until the refrigerator is cold enough, which causes the thermostat to open, thus closing the solenoid valve.

3. The machine now operates on the freezer only and refrigerates it until it is cold enough that the low pressure control opens and stops the machine.

If the freezer calls for refrigeration before the thermostat closes, the low pressure control closes and the machine runs on the freezer only, until the freezer is cold enough, at which

time the low pressure control opens and the machine stops.

If, in the meantime, the thermostat opens the solenoid valve, the higher pressure from the refrigerator evaporator keeps the low pressure control closed until the refrigerator is cold enough. Then with the thermostat open and the solenoid valve closed, the machine soon pulls down to the cut-off setting of the low pressure control.

TWO TEMPERATURE VALVES

Instead of a thermostat and solenoid on the refrigerator evaporator, a temperature or pressure actuated snap-action valve may be used in the branch suction line from the refrigerator evaporator.

Still another way is to use an evaporator pressure limiting valve (sometimes called a back-pressure regulating valve) in the branch line from the refrigerator evaporator, and control machine operation by a low pressure control or preferably a thermostat responding to the refrigerator temperature.

CAPILLARY TUBE MOST POPULAR

Since the two evaporators in this system are in multiple, each must be fed by a thermostatic expansion valve or low-side float. This in itself tends to make the multiple-evaporator system unsuitable to the household refrigerator, practically all of which now use the capillary tube, for it lends itself well to the sealed system—no parts to require replacements, no receiver required, and since the pressures equalize during the off cycle, a low starting torque motor (split phase) can be used.

Moreover, it might be rather difficult to build the multiple evaporator system with the necessary controls on a competitive price basis.

A two-temperature refrigerator, that is, a combination freezer and normal temperature refrigerator, more suitable for the modern sealed unit systems, will be described.

(To Be Continued)

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Who is the wholesaler's salesman?



The man whom we want to talk about here is the individual who contacts you—the buyer. He is either an "outside" salesman who calls on you, or one who waits on you at his salesroom.

He may be the owner of the establishment, who, by choice, likes to serve you personally when you come in; he may be a salesman who takes orders over the counter; or he may be one of many salesmen representing the firm from which you buy.

That salesman who contacts you is perhaps better posted about the products he sells than anyone else in his organization—because his daily operations bring him in closer contact with his customers. This continuous association—rubbing elbows with countless numbers of customers, all striving to satisfy their own particular demands—can't help but create within that salesman a storehouse of valuable knowledge.

Possessed of this wealth of information, the wholesaler's salesman can—and should be—your "right hand man." Because he "gets around," he knows a great deal about application activities of the many products his customers use. He learns what you like and dislike. And as a consequence, others in his organization lean on the salesman's judgment in selecting products which he thinks would win highest approval from you and the wholesaler's other customers.

In the case of tubing, for instance, nearly all his customers express a preference for Wolverine. Buyers of this product have learned through experience that there is a difference in tubing and have recognized in Wolverine the high quality and dependability they want.

WOLVERINE TUBE DIVISION, Calumet & Hecla Consolidated Copper Company, Inc., Manufacturers of seamless, nonferrous tubing, 1413 Central Ave., Detroit 9, Mich.

**BUY FROM YOUR
WHOLESALE**



Tenney Appoints Kielb As Production Manager For 2 Newark Plants

NEWARK, N. J.—Tenney Engineering, Inc. has announced the appointment of Joseph V. Kielb as production manager of both its Newark plants.



Joseph V. Kielb
plant.

These plants produce chambers for testing products under variable environmental conditions. The company's line of "lowside" refrigeration equipment is manufactured at the Baltimore plant.

Kielb will be in charge of all test chamber production including planning and scheduling, plant personnel, production methods, coordination with engineering and sales, and other phases of production management.

He comes to Tenney with an ex-

Wanted

by National Distributor serving refrigeration and air conditioning trade, new lines finished refrigeration goods, component parts, tools, etc.

Box No. 4032
Air Conditioning &
Refrigeration News



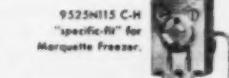
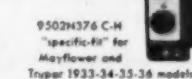
W. L. Beale
Camerzell, who has also had extensive experience in the application of automatic controls, according to Luscombe.

THEY'RE ALL HERE

Refrigerator Control Replacement Units for more than 1000 boxes... "specific-fit" ready to install... in the C-H Refrigeration Control Line.



You know you're right when you use C-H "specific-fit" controls.



9521N85

"specific-fit"
for Philco 1940 models.



Featured by Cutler-Hammer refrigeration wholesalers and recommended by alert service dealers from coast to coast.

Refrigeration Wholesalers April Sales Up 6% over March

Appliance Wholesalers Lose 7% In Same Period; 14% Below April, 1951

WASHINGTON, D. C.—April dollar sales of refrigeration equipment and parts wholesalers were down 5% from a year ago but up 6% from March, according to the Bureau of the Census.

Sales of wholesalers of appliances and specialties in April dropped 14% below the April, 1951, level and were 7% under March. For the first four months of 1952, sales of refrigeration equipment wholesalers declined 17% compared with the like period of 1951, while those of appliance wholesalers skidded 34%.

April sales of all types of wholesalers reporting to the bureau rose slightly (1%) over the previous month and indicated a 4% increase over sales a year ago. Sales for the first four months of 1952, however, lagged 8% behind the comparable period of 1951.

Inventories of refrigeration equipment wholesalers at the end of April showed no change from a year ago and a 1% increase compared with March 31.

Stocks of appliance wholesalers were 20% below the April 30, 1951, level and 2% higher than at the end of March.

Inventories of all wholesale trades dipped 1% below the March 31 stock level and were down 6% below stocks on hand at the end of April of last year.

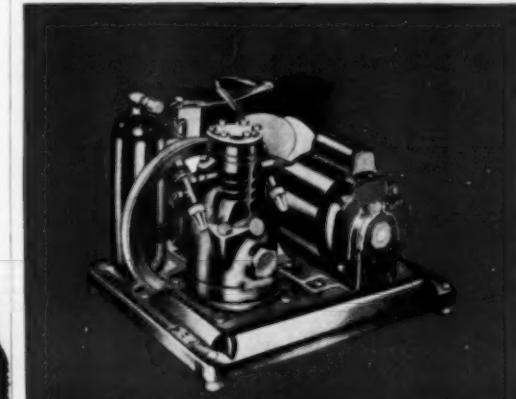
Kind of Business and Geographic Division	Sales			No. of Firms Reporting	April 1952 Panel Values (add 000)
	Apr. 1952	Apr. 1951	4 mos. from Mar. 1952		
Appliances and specialties wholesalers	-14	-7	-34	119	30,627
New England	-16	-7	-41	34	1,436
Middle Atlantic	-25	-10	-43	27	7,031
East North Central	-25	-12	-41	18	2,042
West North Central	-18	-12	-28	15	2,188
South Atlantic	+ 6	- 1	-19	18	2,102
South Central	+ 32	-11	-13	9	1,200
Mountain	+ 1	+ 3	-17	8	1,215
Pacific	+ 2	-1	-30	10	2,343
Refrigeration equipment, parts (com'd)	- 5	+ 6	-17	65	1,732
Middle Atlantic	+ 3	+ 12	-13	13	480
East North Central	-11	+ 19	-19	22	278
South Atlantic	- 1	-11	-15	21	549
South Central	+ 21	+ 80	+ 8	4	197

Inventory, End-of-Month (At Cost)

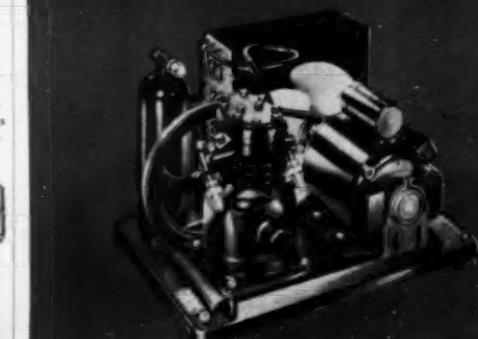
Kind of Business and Geographic Division	Per Cent Change			No. of Firms Reporting	April 1952 Panel Values (add 000)
	Apr. 1952	Apr. 1951	from Mar. 1952		
Appliances and specialties wholesalers	-20	+ 2	90	90	31,522
New England	-8	-8	11	11	1,386
Middle Atlantic	-22	0	15	15	8,665
East North Central	-24	-7	13	13	3,512
West North Central	-22	+ 3	12	12	4,485
South Atlantic	- 4	+ 9	14	14	4,854
South Central	-16	+ 7	7	7	2,481
Mountain	+ 18	+ 8	8	8	2,276
Pacific	- 8	+ 10	7	7	3,411
Refrigeration equipment, parts (com'd)	0	- 1	55	55	4,270
Middle Atlantic	0	- 8	11	11	1,148
East North Central	-11	- 3	17	17	789
South Atlantic	+ 12	+ 1	20	20	1,513

*Insufficient data to show separately.

Now... Universal Cooler OFFERS JOBBERS THE WELL KNOWN Chieftain SELF-CONTAINED UNITS



Model P1640 1/6 H.P. condensing unit



Model P1640 1/6 H.P. condensing unit



Model P1640 1/6 H.P. condensing unit

Included in the new improved Universal Cooler jobber line are these dependable self-contained units. These top quality units proven by 16 years of dependable field service are now available to Universal Cooler jobbers at new low prices.

The self-contained line covering the 1/6 to 3/4 H.P. range is exactly engineered for all light commercial replacement installations. Inventory problems are minimized by supplying an extra pulley with each unit (except 1/6 H.P.) making them adaptable for either high or low back pressures.

Here is a line you can really sell, so investigate the possibilities of a full-line Universal Cooler franchise in your area.



TECUMSEH PRODUCTS
TECUMSEH, MICH.
Company

EXPORT DEPT.: 2111 WOODWARD AVE., DETROIT, MICH.

The world's largest producer of condensing units for the refrigeration industry.

See Some ECA Funds In Refrigeration Work

BOSTON—Some of the funds that the United States is spending throughout the world may be channeled into the refrigeration industry, believes Austin Ford of Jarvis Engineering Co., Baker distributor here.

Not so long ago Ford was engaged by Conley Associates here to make a trip to Bangkok, Thailand, where for a month he studied a proposed \$1,750,000 food freezing plant to be built in connection with a huge municipal fish market.

More recently, at the suggestion of MSA, which superseded ECA, Nai Tuanhai Bamrajarumpai, who is assistant director of the Fisheries Technology Section of Thailand's Department of Fisheries and who will direct the plant when built, came to the United States for a tour of inspection.

Included in his visits to refrigeration installations throughout the country was a trip to Baker Refrigeration Corp., in South Windham, Me., to observe how refrigeration compressors are made and assembled.

If construction of the Bangkok plant is authorized by Congress as now planned, it will have complete fish handling, freezing, and storage facilities along with ice-making. The refrigeration contract alone for this venture is estimated to run about \$450,000.

JUST ASK US

Turn to "What's New" Page for useful information on new products.

Schlosser Is Representing Deepfreeze In Kansas City

NORTH CHICAGO, Ill.—Ben G. Sanderson, general sales manager of Deepfreeze, announced the appointment of George A. Schlosser, Jr., as a Deepfreeze district manager with headquarters at Kansas City, Mo.

Schlosser will supervise all Deepfreeze outlets in the Kansas City area and handle distributor-dealer relations as well as all promotion for the entire Deepfreeze line.

Before joining Deepfreeze, Schlosser was sales counselor and later sales manager of General Electric Supply Corp. of Kansas City.

Schlosser's experience in the electrical appliance field dates back to 1935 when he held the position of specialty sales counselor of the Wyandotte County Gas Co.—a subsidiary of Cities Service Co.—in Kansas City. In 1941 he joined the North American Aviation Co. as a buyer, holding that position until he joined General Electric Supply Co. in 1947.

Dividend Declared by Admiral

CHICAGO—The board of directors of Admiral Corp. recently declared a regular quarterly dividend of 25 cents per share on stock outstanding, payable June 30, 1952, to stockholders of record June 16, Ross D. Siragusa, president and board chairman, said.

The booklet, featuring "Freedom . . . for the whole family . . . for better meals . . . for food savings," tells why the modern home freezer stands out as today's most valuable home appliance. Facts and figures on how the freezer stretches food budgets, possible savings per year for families from two to six members, and many other home freezer benefits are covered.

The booklet also mentions a "Let's Prove It" form which any family can fill out, based on its own individual food consumption, to prove accurately on an individual basis, just how soon a home freezer will actually pay for itself in the home.

The "Freedom" booklet is part of a complete dealer merchandising program which Ben-Hur dealers throughout the country are now showing to

Current LITERATURE available



To obtain further information on the literature listed below, please refer to key number preceding listing. Please use the "Information Center" form on "What's New" page.

Freezer Booklet Offers Survey 'Prove It' Form

KEY NO. N-640

MILWAUKEE—A new pocket-sized booklet, fashioned after the popular digest type of magazines, has been published by Ben-Hur Mfg. Co. here for distribution through home freezera dealers.

The booklet, featuring "Freedom . . . for the whole family . . . for better meals . . . for food savings," tells why the modern home freezer stands out as today's most valuable home appliance. Facts and figures on how the freezer stretches food budgets, possible savings per year for families from two to six members, and many other home freezer benefits are covered.

The booklet also mentions a "Let's Prove It" form which any family can fill out, based on its own individual food consumption, to prove accurately on an individual basis, just how soon a home freezer will actually pay for itself in the home.

The "Freedom" booklet is part of a complete dealer merchandising program which Ben-Hur dealers throughout the country are now showing to

help them more effectively present the freezer story to homemakers. Extra copies can be obtained from the company.

1,003 Household Hints From Deepfreeze' In Book

KEY NO. N-641

NORTH CHICAGO, Ill.—A 128-page booklet entitled "1,003 Household Hints from Deepfreeze" is being made available to Deepfreeze dealers as a giveaway item by Deepfreeze Appliance Div. of Motor Products Corp.

"1,003 Household Hints" is filled with clever, practical ways to save money, time, and work around the home. The booklet contains carefully tested hints ranging from how to utilize left-over wall paper all the way to what to do with empty lipstick tubes.

A number of "how to" experts and home economists have collaborated in this completely indexed volume.

Deepfreeze electric ranges, refrigerators, and home freezers are well represented on the cover pages of "1,003 Household Hints."

Shows Way To Reduce Spray Painting Costs

KEY NO. N-642

TOLEDO—Methods of reducing decorative spray painting costs are described in a new full color brochure just prepared by Conforming Matrix Corp.

Subjects treated include electro-formed metal masks, foot treadle, and air-operated fixtures, fully automatic spray equipment, mask washing equipment and air-operated clamps, fixtures, and tools.

Blackstone Booklet Depicts Layout of Laundry Room

KEY NO. N-643

JAMESTOWN, N. Y.—A new booklet suggesting ideas of room arrangements for a built-in laundry has been issued by Blackstone Corp. here.

Basic ideas as expressed by five leading architects and eight outstanding home building and women's service magazines are presented.

This 24-page "Practical Laundries" booklet will be used by Blackstone to promote its combination laundry unit—a fully integrated and streamlined workshop for automatic washing, drying, and ironing. It will be offered in national advertising and circulated to trade lists of architects and builders.

M. Blazer Issues Spring, Summer Estimating Catalog

KEY NO. N-644

PASSAIC, N. J.—Its "Spring and Summer 1952 Estimating Catalog" was published recently by M. Blazer & Son, wholesaler and manufacturer of heating, ventilation, refrigeration, and air conditioning equipment, and supplies here.

The 32-page pricing guide covers more than 80% of the items normally used by contractors and engineers in these fields. Descriptive sales talk has been eliminated and data has been reduced to the bare minimum required to make a selection.

Covered are fans, blowers, compressors, accessories, fittings, pumps, coils, condensers, valves, motors, V-belt drives, grilles, registers, air conditioners, and chillers.

Folder on Smoke Controls For A. C. Systems Issued

KEY NO. N-645

BERGENFIELD, N. J.—Ways to guard against panic and damage from smoke accidentally introduced into the air intake of air conditioning systems is the subject of the latest Ess Instrument Co. Bulletin 521.

The four-page brochure includes descriptions and diagrams of all three models of the Ess "Smoke Indica-

tors," including one that eliminates the necessity for wall break-throughs by flush mounting. A remote-reading model is also described and illustrated for installation where the main duct is some distance from the main fan controls.

Folder Describes 2 New Ajax Automatic Ice Flakers

KEY NO. N-646

EVANSVILLE, Ind.—A folder describing its two new automatic ice flakers has been issued by the Ajax Corp. of America. One model is air cooled and the other water cooled. Flakes produced are slightly curved and of uniform thickness.

Acme Bulletin Illustrates Flow-Cold Cooling Tower

KEY NO. N-647

JACKSON, Mich.—A new bulletin on Acme "Flow-Cold" cooling towers has just been made available by Acme Industries, Inc. This bulletin illustrates the various parts of the cooling tower and furnishes complete specifications.

The towers are available in six models and range in capacity from three to 10 tons. Cooling tower ratings at various wet bulb temperatures are given in this bulletin together with general dimensions and nominal capacities.

Catalog Lists Service Units for Soda Fountains

KEY NO. N-648

CHICAGO—Bastian-Blessing Co. here has recently published a catalog describing its service units for soda fountain operations.

The eight-page booklet includes service stands for appliances, refrigerated and dry storage units, refrigerated hamburger dispensers, and self-leveling dish dispenser stands.

Curtis
REFRIGERATION
AIR CONDITIONING
COMMERCIAL

Packaged Air Conditioning Units
2 to 15 Tons

Condensing Units
1/4 hp. to 40 hp.

Curtis Refrigerating Machine Division
of Curtis Manufacturing Company
1912 Kienlen Ave., St. Louis 20, Mo.

Established 1854

Genuine Joe says:

Install sleeve bearings
with this NEW Wagner
Bearing Tool . . .

It removes worn bearing
and installs genuine
Wagner bearings in one
easy operation. No ham-
mering — reaming — or
spoilage. Write
for information
today.

Wagner Electric Corporation
6571 PLYMOUTH AVENUE, SAINT LOUIS 15, MO., U.S.A.

RUDY
CONDENSERS

Any type . . . brazed . . . crimped . . . clean . . . tight . . . highest quality . . . prompt service . . . low cost.

WRITE FOR DETAILS

RUDY Manufacturing Co.
Specialists in
Manufacturing Condensers and Condensers

DOWAGIAC, MICHIGAN

DESIGNED FOR DANGEROUS ATMOSPHERES

Following the recommendations of the National Electrical Code, Temprite has designed special Model PB-10WE Explosion-Proof Drinking Water Cooler for use with positive safety and security in potentially combustible atmospheres. These would include hospital-surgical atmospheres containing ether fumes; factories and petroleum refineries containing gasoline, petroleum, naphtha, alcohol, acetone, grain dust, natural gas or lacquer solvent; mines containing coal dust, etc. Mail the handy coupon below for complete details.

TEM PRITE EXPLOSION PROOF WATER COOLERS

Self Contained Water Coolers	Remote Water Coolers	Carburetors
Control Valves	Instantaneous Liquid Coolers	Oil Separators
Beer Coolers		

TEM PRITE PRODUCTS CORP. 72-A, East Maple Rd., Birmingham, Michigan

Send me data on explosion-proof coolers.
 I am interested in a franchise to distribute Temprite self-contained water coolers.

Name _____

Address _____ Zone _____

City _____ State _____

More Freezer-Food Plans--

(Concluded from Page 1, Column 4)
and proven successful in actual operation. Amana distributors will give every aid and guidance to the dealer in setting up the plan and arranging the necessary food and banking connections. Amana's liberal cooperative advertising policy will apply to Amana Plan promotions."

Amana declared that its research "through our organization of pilot operations has shown us that for continuous, successful operation this productive merchandising plan can best be handled through recognized appliance dealers. The established goodwill of the local appliance dealer is a most important factor."

With respect to beef sales, officials of OPS pointed out that only over-ceiling sales are prohibited by its regulations. Thus, it was explained, a freezer-food retailer cannot be forced to sell beef alone at the same special prices—so long as they are below ceiling—at which he sells beef to customers who purchase both freezer and food.

CONDITIONAL BEEF SALES

One section of CPR 25, Revised, states that the sale of beef cannot be conditional on the purchase of a freezer. But, according to agency officials, this prohibition applies only to cases where a tie-in sale would be used to charge more than the ceiling price for beef.

As previously reported, where appliance vendors merely act as an agent for collection or payment only in connection with retail beef sales, the transaction between the retailer and the appliance vendor is not a sale of beef and is not subject to CPR 25, Revised.

This exempts from the regulation those freezer-food operators who (1) sell the freezer only and give the plan customer some identification which enables him to buy food from a regular food and meat dealer, or who (2) collects payments for beef sales for the account of a regular beef seller.

The agent in charge of the Los Angeles office of the Department of Justice was reluctant to discuss a report that an investigation was being made of the purported refusal of food packagers to sell to freezer-food plan provision houses because of pressure by supermarkets.

However, one trade source asserted that a Los Angeles television station "will not sell time to any freezer plan operator because a large brewer, also an advertiser, had been warned by supermarkets that no more beer would be purchased if he continued to participate in TV time shared by a food-freezer concern."

BEN-HUR PLAN

In Milwaukee recently, details of Ben-Hur Mfg. Co.'s freezer-food plan were outlined to 11 district managers. The company's distributors were later given the plan story at five sectional meetings.

R. C. Graves, Ben-Hur sales manager, said company plans were being offered on the West Coast and by Hill Equipment Co., Buffalo; Andrew Distributing Co., South Bend, Ind.; and J. George Fischer & Sons, Inc., Detroit.

It was also reported that McCormack & Co., Inc. of San Francisco, new Ben-Hur northern California distributor, planned to open a freezer food store in that city. Dealer salesmen will be given special training as will men desiring to become freezer-food salesmen. McCormack is already sponsoring a TV program promoting freezers and featuring a home economist.

During the Ben-Hur meeting, it was explained that the manufacturer's freezer-food plan calls for distributors sponsoring it to appoint a special Ben-Hur sales manager. The latter will then be aided by Ben-Hur in all phases.

HOME ECONOMIST ESSENTIAL

The company's plan also calls for employment of a home economist to call on customers and help them make out their food orders. This is an important service, it was stressed, because proper use of a home freezer means a complete change in food buying habits. And, the district managers were told, freezer-food salesmen must teach customers how to effect savings by buying food properly if the plan is to be successful.

Also emphasized was the point that the plan requires door-to-door selling to be effective. Some dealers, it was reported, employ women to dig up leads, paying the canvassers \$8 to \$10 for each sale.

West Coast plan salesmen are

averaging \$200 to \$250 weekly, it was reported, with most sales resulting from customers' recommendations.

Ben-Hur's plan is backed up by complete presentation and sales training material.

Later, Maumee (Ohio) Frozen Food Lockers announced that it was taking on the Ben-Hur and Amana lines and would give a quantity of meat to freezer purchasers as a bonus. These offers were made by direct mail to approximately 2,000 customers and prospects:

Seventy dollars worth of meat to those who buy a freezer of 18-cu. ft. capacity or more; \$50 worth to purchasers of a 16-cu. ft. unit; \$40 worth with the purchase of a 12 or 13-cu. ft. freezer; and \$20 worth to the buyer of a 9-cu. ft. unit. If the customer desires, the locker-grocery concern will apply the particular amount toward the purchase of a quarter or side of meat.

FREEZER-KIT BONUS

In addition, those who take advantage of the food offer can get as a bonus a freezer kit valued at \$26. Freezer sales are being directed by Robert L. Falke, a new member of the 750-locker plant's staff.

The company's plan offers customers up to \$250 worth of food at about 10% off retail prices on packaged fruits and vegetables. Meat is sold at regular locker prices.

In Washington, D. C., the appliance stores of Phillips, Inc. told prospective customers of its plan that they could make their own selection of bulk meat at the meat supply house.

Frigidaire freezers were being promoted by C. H. Montgomery & Co. in Fredericksburg, Va., in connection with the company's freezer-food plan.

Metals Allotments--

(Concluded from Page 1, Column 2)
base period. Previously, they were allowed to self-certify for up to 3,000 lbs. of copper and 4,000 lbs. of aluminum.

The second group—the largest users—can write their own tickets for 40,000 lbs. of copper and 60,000 lbs. of aluminum so long as they do not exceed 75% of their base period use. They were not allowed to self-certify at all before.

NPA pointed out that third-quarter allocations of these metals have already been made. The new rules allow manufacturers to increase orders without applying to NPA.

Henry Fowler, head of the NPA, said these actions were taken because of a softening demand for aluminum and anticipated increased shipments of copper from abroad during the summer. He emphasized that no change has been made in steel allocations.

Meanwhile, the Office of Price Stabilization has indicated that manufacturers of copper products will probably have to absorb the increased costs of foreign copper.

NPA said that builders of industrial projects will be able to self-certify for 2,000 lbs. of aluminum instead of the 1,000 lbs. previously allowed. There was no change in their permitted 2,000 lbs. of copper and 25 tons of steel.

Builders of commercial projects have had their self-certification allowances raised to five tons of steel, 750 lbs. of copper, and 1,000 lbs. of aluminum. Before they were allowed only 200 lbs. of copper and aluminum.

Two actions that NPA said that it would make for the third quarter

were not made. One was permission to builders of recreational and entertainment projects to self-certify for small amounts of controlled materials and the other an allowance of structural steel for home construction.

Indications are that NPA may even hold up allotments already made for construction of 431 commercial, religious, entertainment, and municipal projects for the quarter because of the steel strike.

Despite its failure to provide structural steel for home construction, NPA did increase slightly the amounts of copper and aluminum permitted. Homes with steel plumbing may use 50 instead of 35 lbs. of copper while homes with copper plumbing may use 175 instead of 135 lbs. of copper. All homes may use 250 lbs. of aluminum.

Worthington--

(Concluded from Page 1, Column 3)
was formerly assistant manager of the division.

J. Charlis, Jr., formerly in charge of the oil refinery section, was designated manager of the petroleum and petro-chemical section.

P. J. McLeod, an application engineer, was promoted to manager of the special process section.

At the Holyoke, Mass. plant, P. H. Shaw was named manager of the packaged air conditioner section and D. H. McCusig was appointed manager of the central station equipment section.

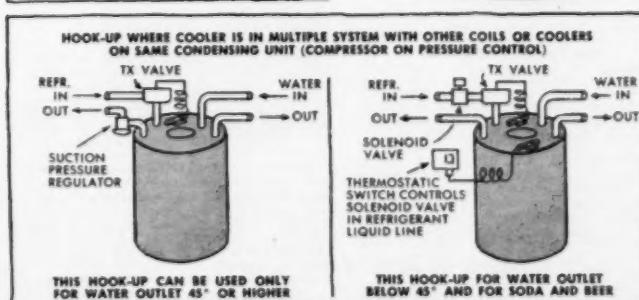
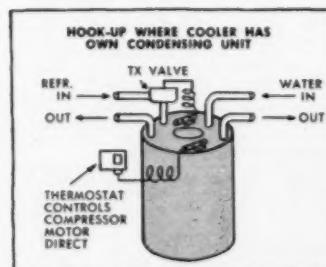
Shaw was previously a supervisor of distributor sales and McCusig was a supervisor of engineering sales at Holyoke.

W. F. Bishop continues as manager of distributor sales at Holyoke.

EASY DOES IT.

WITH **heat-x** LIQUID COOLERS

Simplified construction makes Heat-X Liquid Coolers easy to install and easy to service. Separate liquid and refrigerant coils are cast within single aluminum block . . . positive insurance against freeze-up damage. No oil separator or surge drum necessary. Single and multiple hookups illustrated below.



THE HEAT-X-CHANGER CO., INC.
BREWSTER, NEW YORK



Who said only cucumbers are cool?



One of the most effective selling points for Worthington air conditioning and refrigeration is this: *America's leaders...in many businesses...select Worthington.*

For example: more and more of the country's foremost frozen food producers depend on Worthington refrigeration for the fast freezing which insures that fresh-picked flavor.

And more and more food outlets of every size protect produce

. . . keep customers contented regardless of the weather . . . with Worthington air conditioning.

No distributor has a more complete line at his fingertips than the Worthington distributor. He can handle *any* job with exactly the right equipment.

Advertising? You'll find the Worthington story in TIME, NEWSWEEK, and many other magazines read by architects, builders, contractors, food producers, frozen food producers and by key men throughout such industries as chemical and petroleum.

Worthington Corporation, Air Conditioning and Refrigeration Division, Harrison, New Jersey.

WORTHINGTON

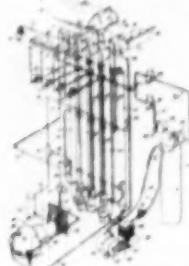


AIR CONDITIONING AND REFRIGERATION
A Balanced Line...A Balanced Franchise

PATENTS

Week of May 6 (Continued)

1,586,586. ICE MAKING MACHINE AND METHOD. Aaron Lee and Eli Lieberman, Miami, Fla.



A machine for producing ice in small pieces, comprising a plurality of freezing tubes, means for intermittently supplying water to said tubes in controlled amounts as required to freeze a refrigeration system and controls therefor arranged to cause freezing of columns of ice in said tubes and thawing the same from the tubes in alternate phases of the refrigeration cycle respectively, devices whereby air pressure applied to the ice columns at one end thereof and independently of the water supply means to forcibly extract the same from said tubes when they are freed therefrom, said device comprising a plurality of air accumulators and a freezing tube, a source of air supply that is independent of the water supply means and connections between the source of air supply and the air accumulators constructed to separately deliver air to the lower portions of the accumulators in timed sequences and breaker members against which said ice columns impinge when so ejected such members being arranged to cause the ice to be thereupon broken into pieces of predetermined small size.

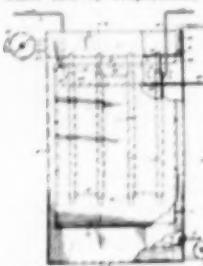
1,586,589. EVAPORATIVE CONDENSER. Aaron Lee and Eli Lieberman, Miami, Fla.

In a condenser of the character described the combination with a closed chamber, a pair of tubes disposed in said chamber one of which is disposed in and lies in spaced relation to the other, means for conducting a hot gas to and from the space between said tubes, a water receptacle into which the upper end of the inner tube of said tubes opens so that water from said receptacle may fall in a film through and along the inner wall of said inner tube, a lower water receiving compartment in the closed chamber and disposed below the lower end of said inner tube, into which the water from said tube falls, a blower disposed to draw air downwardly through the inner tube along with the water film

passing therethrough and to then draw the air to and eject it from the upper portion of the closed chamber, means for automatically supplying water to the lower water receiving compartment in a quantity sufficient to compensate for the water lost by evaporation, means for

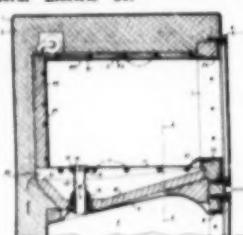
1,586,597. SWITCH FOR REFRIGERATOR.

TOMS. Graham S. McCoy, Springfield, Mass., assignor to Westinghouse Electric Corp., East Pittsburgh, Pa.



delivering water from the lower water compartment into the upper receptacle and for also delivering a spray of water against and downwardly along the outer face of the outer of said tubes.

1,586,594. INSULATION ARRANGEMENT FOR COMBINATION REFRIGERATORS. Harold A. Mason, Erie, Pa., assignor to General Electric Co.

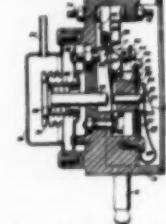


In a refrigerator including an outer wall, a first liner spaced from said outer wall and defining a frozen food compartment, a second liner spaced from said outer wall and defining a fresh food compartment, an insulating structure for said frozen food compartment which includes a plurality of blocks of moisture-impermeable heat-insulating material disposed in contact with the exterior surfaces of the top, back and sides respectively of said first liner, the exterior surface of the bottom of said first liner being exposed for the collection of frost thereon, moisture-permeable heat-insulating material between said moisture-impermeable material and said outer wall, means for cooling said first liner to maintain said first liner at a temperature substantially below the freezing point of water and substantially

below the temperature of said second liner, and a water-collecting receptacle positioned below said first liner for collecting defrost water dripping from said first liner, said receptacle being spaced from said first liner to afford a passage for moisture from the space between said second liner and said outer wall to the bottom of said first liner.

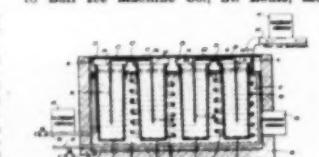
1,586,598. PORTABLE REFRIGERATOR. Pietro Maniscalco, Chicago, Ill.

TOE. Pietro Maniscalco, Chicago, Ill.



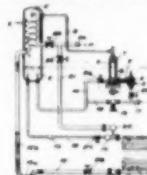
A refrigerator defrosting switch comprising a housing, a switch blade in said housing and biased for snap-action movement to two positions, a spring element stationarily secured at one end in said housing, a cam positioned for rotary movement within said housing and adapted to engage the free end of said spring element to flex the same and thereafter release said spring, whereupon said free end swings back to its normal position, the momentum of said free end being such that it continues in its swing to beyond its normal position, said free end eventually returning to its normal position, a member positioned in the path of said free end when swinging beyond its normal position and adapted to be moved by said free end, said member when so moved being adapted and arranged to move said switch blade from one of its positions if the switch blade is in said one position to the other of said positions of the switch blade, and means responsive to a number of refrigerator operations for rotating said cam.

1,586,598. MANUFACTURE OF ICE. Lloyd L. McCoy, St. Louis, Mo., assignor to Ball Ice Machine Co., St. Louis, Mo.



In a method of manufacturing ice, the steps of subjecting liquid in a container to a freezing medium to freeze the same, applying ultrasonic vibrations to the liquid during the freezing operation and penetrating the liquid with the vibrations as the liquid freezes.

1,586,605. REFRIGERATING PLANT. Carl Thorwid, Uppsala, Sweden.



A refrigerating plant comprising the combination of an evaporator for the refrigerant, a reducing valve inserted in a conduit for the refrigerant to the evaporator and a receiver suction trap for the refrigerant inserted in a conduit from the evaporator, said suction trap being disposed at a higher level than said evaporator, said evaporator being connected at its upper end with said receiver suction trap at the lower end thereof, and said evaporator being connected at its lower end with said receiver suction trap above the normal level of liquid refrigerant therein, said conduit connecting the lower portion of said evaporator with said receiver suction trap being provided with a bend said bend being adapted to prevent the formation of a continuous liquid column in a vertically extending portion of said conduit.

1,586,601. REFRIGERATING APPARATUS. Richard S. Gangier, Dayton, Ohio, assignor to General Motors Corp., Dayton.



A freezing device comprising in combination, a tray adapted to contain a body of water to be frozen, said tray having a bottom which is continuously flat throughout its extension intermediate side and end walls thereof, a resilient grid capable of being manually distorted removably disposed in said tray, said grid including a set of transverse walls extending from said flat bottom of the tray to substantially the top thereof in spaced apart relation to form, when water is frozen therein, separated individual ice blocks extending continuously from one of said side walls to the opposite side wall of said tray, said grid also having a longitudinal wall formed integral with said set of transverse walls and longitudinal wall depending into the tray and having its lower edge spaced a substantial distance above said continuous flat bottom thereof to score the upper portion and surface of the separated ice blocks intermediate their ends, and means for elevating said grid together with ice blocks adhering thereto relative to said tray whereby said grid may be distorted to split the ice blocks apart along said scoring into a plurality of smaller ice blocks and to simultaneously cause their release from said grid.

1,586,606. HOT-GAS VALVE. Franklin M. MacDougall, Kirkwood, Mo., assignor to Alco Valve Co., University City, Mo.

In a refrigeration system, a hot gas

line, an evaporator, a distributor at the inlet of the evaporator, first connections from the hot gas line to the distributor

a compressor upon the base, a cover for said compressor removably attached to the base, an insulated temporary cover dependent from the base, an open-bottomed cylindrical evaporator dependent from the temporary cover and connected to said compressor, an insulated barrel adapted to removably receive the evaporator therein and latch means for holding the temporary cover in connection with the upper end of said barrel.

DESIGNS

166,715. REFRIGERATOR CABINET. Ray C. Bandin, Oak Park, Ill., assignor to Hotpoint Inc.



The ornamental design for a refrigerator cabinet.

ATTENTION MANUFACTURERS

Aggressive manufacturer's representative seeking refrigeration equipment and parts, food store equipment and complete allied lines for representation in nine midwestern and southwestern states. Both partners thoroughly familiar with trade and experienced in establishing dealers. 34 years combined experience.

CORBIN & PLATZ SALES AGENCY
C. E. Corbin L. A. Platz
P. O. Box 9437 Kansas City, Mo.

CLASSIFIED ADVERTISING

RATES for "Positions Wanted" \$5.00 per insertion. Limit 50 words. 10¢ per word over 50.

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ADVERTISEMENTS set in usual classified style. Box addresses count as five words, other addresses by actual word count. Please send payment with order.

POSITIONS WANTED

SERVICE ENGINEER with 27 years' experience in commercial and industrial refrigeration, air conditioning and heating, up to and including 300 ton systems. Wants permanent connection with company in southern Florida. At present, service manager for one of Chicago's leading contractors. BOX 3992 Air Conditioning & Refrigeration News.

PROFESSIONAL SPECIALIST service available for the marketing of new products or increasing sales of established products. Sales organization establishment and development, dealer, distributor and sales personnel training; product promotion and merchandising program development. Market analysis and surveys. Sales outlets and personnel available on a national or area basis. Twenty years' experience air conditioning, heating and refrigeration industry. Consulting services. Retainment fee or contract basis. BOX 4021, Air Conditioning & Refrigeration News.

CORPORATION SALES, merchandising and promotional executive with national following of distributors, jobbers and manufacturers representatives will establish and develop sales outlets on a national or area basis for two or three non-competitive manufacturers lines of commercial refrigeration, air conditioning or heating equipment. BOX 4028, Air Conditioning & Refrigeration News.

SALES ENGINEER, 3 years experience with national manufacturer selling production items to heating, air conditioning, and refrigeration manufacturers. Thoroughly grounded in design and production methods. 27 years old, college grad. Mechanical engineer, resident of Los Angeles. Want selling job with manufacturer or representative. Prefer commission basis. Good knowledge of western states. BOX 4030, Air Conditioning & Refrigeration News.

AVAILABLE SEPTEMBER 1st, distributor of commercial refrigeration equipment for national manufacturer. Sales promotion and engineering background. Thoroughly experienced on food market design-layout and equipment. Mechanical-electrical application engineering supervision. Desires connection with manufacturer, architect-engineer or food store organization. Reply BOX 4033, Air Conditioning & Refrigeration News.

POSITIONS AVAILABLE

SERVICE MANAGER—commercial and air conditioning. Good salary and substantial bonus. Visit, telephone or write KOLD-DRAFT, INC., 321 N. Wells, Chicago 10, Illinois. Superior 7-0825.

REPRESENTATIVE WANTED Large midwest manufacturer of refrigeration and industrial controls desires representatives in the New York and Boston areas. Excellent opportunity for men who can sell to jobber organizations and original equipment manufacturers. Reply BOX 4019, Air Conditioning & Refrigeration News.

MAJOR MANUFACTURER with district sales office in Houston, Texas, requires the services of a sales manager qualified to assume responsibility of district operations. Must have some knowledge of mechanical refrigeration. Please state your qualifications in your first letter, with a picture if possible. All replies will be held in strict confidence until such time as an interview can be arranged. Write BOX 4027, Air Conditioning & Refrigeration News.

SALES ENGINEER—Refrigeration component manufacturer requires experienced man for Chicago area. Car necessary. Salary and monthly bonus. Real opportunity for right man. BOX 4029 Air Conditioning & Refrigeration News.

GRADUATE MECHANICAL engineer, BS degree with minimum of 2 years experience helpful but not necessary. Position permanent. Starting salary \$5,940 with regular automatic increases. Liberal vacation, sick leave and other benefits. Some travel. Location: midwest. BOX 4031, Air Conditioning & Refrigeration News.

SALES MANAGER Outstanding and well organized commercial refrigeration distributor has golden opportunity in large eastern city for experienced man who has and can handle full responsibility of this position. This is an unusual chance with the privilege to purchase into the company if desired. In your first letter state age, marital status, education, past experience (in detail), salary expected and availability. BOX 4034, Air Conditioning & Refrigeration News.

EQUIPMENT WANTED

WANTED: TRADE-INS for export. We are buying trade-in refrigerators as-is, sealed units, 1940 and later models, 5½ cu. ft. and larger, all makes in any quantity. Please give us the quantity, make, model, size and year with your offer. AMERICAN ISRAELI MFG. CORP. 330 Seventh Avenue, New York 1, N. Y.

EQUIPMENT FOR SALE

FOR SALE—60 ton cooling equipment as follows: with magnetic starters and automatic controls; 2 Frick 4 cylinder Freon compressors 4½ x 4½, Model F.W.-440; 40 H.P.-208 volt-3 phase-60 cycle-1750 R.P.M. motors; 5 Aero fin coils, 4 pipes each; 18 pipes; high 81" x 26"; 1 80-ton Buffalo fan 38" x 42" delivery 20,000 C.F.M.; 2 new American coils model 20300. BOVAL REALTY CO., 312 38th Street, Union City, New Jersey.

\$52 BUYS standard brand ½-H.P. open type or sealed a/c per complete unit. Other sizes up to 3 HP. Write for complete listing on units and parts, including Klixon overload relays @ 15¢. MANN REFRIGERATION SUPPLY CO., 440 Lafayette St., New York 3, N. Y.

SACRIFICING MODEL FDS18A 18 cu. ft. display freezers with superstructure and Thermopane glass sliding doors. Only \$340 each, f.o.b. New York. List price \$714. For complete details, write or call MANN REFRIGERATION SUPPLY CO., 440 Lafayette St., New York, Gramercy 3-8000.

SEALED UNITS ½ HP fan cooled condenser, complete with thermostatic control, blower coil. Leading brands. Quantities of 100, \$40 each. Airtswitch, temperature control. Type 260AT102, Model 1300 Range 20°-65°. Electrical rating 1 HP. External adjustment, 4,000 available. Prices on request. REFRIGERATION TRADING CO., 234 Canal St., New York City. Walker 5-4720, Canal 6-7055.

ATTENTION SERVICEMEN—Send for our new catalog—on controls, valves, relays, brass fittings, V-belts—hermetic and open type units. All new merchandise at great savings up to 50%; sold on money back guarantee. WALTER W. STARK REFRIGERATION, 283 Lincoln Ave., Chicago 13, Illinois.

MISCELLANEOUS

HERMETICALLY SEALED units remanufactured. One year warranty. Norge all models. Hotpoint, G. E. (bottom units), \$49.50. Coldspot, Frigidaire, Westinghouse, Crosley, Kelvinator, to and including ½ H.P., \$45.00. Other models priced on request. You ship freight prepaid. Return shipment forwarded C.O.D. NORD HERMETIC CO., 1701 San Leandro Blvd., San Leandro, California.

DIRECTOR OF ENGINEERING

For young, aggressive, flexible, successful organization specializing in the most promising, fastest growing segment of the air conditioning industry. Require engineering degree and ten years experience in "package" air conditioning and/or refrigeration plus proof of successful administrative experience, imagination and sound judgment. Age 35-45; salary, open. Rapid growth requires man who can expand department soundly and qualify for engineering vice-presidency. Activity includes principally contemporary civilian products plus some essential military development work and forward-looking "post-emergency" projects. Communicate in confidence with Herbert L. Laube, President, Remington Air Conditioning Division, Auburn, N. Y., Telephones: 3-7373 or 3-3706.

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6-23-52



WOODEN SHELF fitted over top of refrigerated self-service meat display case increases display space and increases sales. Shelf was built to widen display area and protect the fixtures.

Canned Meat Display Shelf Fitted over Refrigerated Cases Boosts Space, Sales

LINCOLN, Neb.—Canned meat sales have been increased substantially at Beechner's Supermarket here, by making 50 lin. ft. of reach-in meat cases do double display duty, it was reported by Milton Beechner, owner of the market. The top of the backbar of the meat vending cases has been fitted with a special wooden shelf for deeper display of canned goods and to avoid damaging the porcelain-enamelled fixtures.

Beechner pointed out that this display location for canned meats is a "natural" for related selling with packaged fresh meats. Sales have gone up steadily since the arrangement was made.

He attributed this not only to the more commanding position of the canned meats but also to the fact it has made meat shopping easier, both for the canned and fresh varieties. When the two are shown together,

one item suggests another.

The refrigerated cases of the self-service meat department extend for 50 ft. along the back wall with a "Self Serve Meats" wall sign placed so that the department can be seen easily from any place in the store and from the street. The shelf above for canned meats has a slotted metal leading edge for insertion of price tabs to facilitate self service. Larger canned meat items such as hams are displayed beside fresh and pre-packed meats in the reach-in compartments. The combination display also has conserved valuable space.

Since canned meats are one of the chief pilferage items in the supermarket, the new location for the department has proved beneficial also from that standpoint, the grocer added. The high display position plus the location on a very wide aisle makes it more difficult to steal cans.

Self-Service Freezer Doubles Sales Of Boxed Chocolates for Drugstore

DENVER—By displaying frozen chocolates in a self-service freezer, boxed candy sales were more than doubled in less than a year's time, reports owner Herbert Esh of the Esh drugstore here.

His store sold \$3,379 worth of frozen candy in 11 months, and average daily sales are still increasing. For the previous 12 months, sales of all types of boxed candy totaled only \$1,601. These figures do not include candy bar sales.

"Frozen confectionery seems to be ideal for year-round sales in the drug-store," Esh says. "We now use half the space originally devoted to displaying boxed candy, have eliminated all spoilage loss, and spend practically no time keeping the display in perfect order."

A BRAND NEW LEADER



LA CROSSE
GLASS
DOOR
REACH-IN

Attractive display means more sales and added profits. The new

LA CROSSE glass door reach-ins are packed full of eye appeal inside and out with spacious interiors and convenient shelving... all corners coved for easy cleaning. Beautifully finished in gleaming white baked enamel or stainless steel—either two or four door models—electric complete or remote. PEP UP YOUR CUSTOMERS' DISPLAYS — PEP UP YOUR SALES WITH THIS BEAUTIFUL NEW REACH-IN.

Model 85BW illustrated—26 cubic ft. (electric complete). Many other sizes and models available.

WRITE TODAY for complete information

LA CROSSE COOLER CO.

Factory and Gen'l Office: 2801 Lucy Blvd. E. La Crosse, Wis. Export Office: 80 Broad St., New York City. Cable Address: Exempt

Correction

On page 9 of the June 2 issue, the NEWS published the story of Baur's confectionery, Denver, in which was described a refrigerated candy case. The case is a Haussmann model OLT instead of a Tyler, as reported.

Official of British Firm Begins S. African Tour

LONDON, England—Charles R. Purley, managing director of Longford Engineering Co. Ltd., Bognor Regis, recently left here to begin a tour of South African agents and distributors of "LEC" refrigerators.

Purley left London Airport on the BOAC "Comet" jetliner. He is a pilot himself and flies his own company's plane.

Government Contracts

DEPARTMENT OF DEFENSE

Description	Quantity	Invitation	Date
Procurement Division, Building 1400, Camp Kilmer, New Brunswick, New Jersey	Job	(AI 28-022-62-38)	29 Jun 52

Replacement of pressure and temperature relief valves at Camp Kilmer, New Brunswick, New Jersey.

Commandant of the Marine Corps, Washington, D. C.

Atta: Supply Department Procurement Section

Air-conditioning units, room, 750 cu. ft. electric, motor driven, window mounted, type I, federal spec 60-A-372

Air-conditioning units, space, electric, motor driven, type IV, federal spec 60-A-372

Cooling towers, mechanical draft, outdoor type, specs with bid set

Little Rock District Corps of Engineers, Little Rock, Arkansas

Construction of one cold storage building approx. 80 x 94 ft. with wood frame and concrete floor, refrigeration system, electrical utilities

District Public Works Office, Sixth Naval District, Naval Base, South Carolina

Air conditioning building 10 - NavSta, Green Cove Springs, Florida

Air conditioning, office area, Job

building 45, ChasNavShipYd, Charleston, S. C.

Air conditioning bldg. 1 and ComNavShipYd, Charleston, S. C.

Commanding Officer, Fort McPherson, Fort McPherson, Georgia

Fans, window type 400 cu. ft. 22 Jun 52

Fans, attic type 100 cu. ft. 22 Jun 52

Walla Walla District Corps of Engineers, Walla Walla, Washington

Rehabilitate and alter heating Job ENG-52-42B 25 Jun 52

and air conditioning system, building T-1

GENERAL SERVICES ADMINISTRATION

Description	Quantity	Reference No.	App. Bid Date
Business Service Center, General Services Administration, Region 5, 575 U. S. Courthouse, 219 South Clark Street, Chicago 4, Ill.	24 ea	CHD-2013	6-27-52

Electric Water Coolers, Fed Spec OO-C-566b and Amend. 2

Business Service Center, Region 3, General Services Administration, Washington 25, D. C.

Installation of Air Conditioning Job

Building, Bidg., Washington, D. C.

(GS-R3-R 6-23-52 1641)

CONTRACTS AWARDED THROUGH JUNE 13

Chicago Quartermaster Depot, QM Purchasing Division, 1819 West Pershing Road, Chicago 9, Illinois

Refrigerator 6 cu. ft.—127 ea.—Served, Inc., Evansville, Indiana

52-1207B refrigerator, frozen food, prefabricated—50 cu. ft.—\$179,225.

McCrory Refrigerator Co., Inc., Kendallville, Indiana

52-1207B refrigerator, frozen food, prefabricated—150 cu. ft.—exceeds \$250,000.—McCrory Refrigerator Co., Inc., Kendallville, Indiana

52-1352B refrigerated warehouse prefabricated (75 cu. ft.) and data lists (5 sets); and photographic illustrations (1 set).—Exceeds \$250,000.—Ed. Friedrich, Inc., 1117 East Commerce St., San Antonio, Texas

52-1352B refrigerated warehouse prefabricated, and data lists; and photographic illustrations—134 cu. ft.—\$227,900.—Amana Refrigeration, Inc., Amana, Iowa

New Department District Public Works Office, Room 638, Church St., New York 7, N. Y.

Installation of Air Conditioning System in the Optical Shop Building 157, U. S. Naval Submarine Base, New London, Connecticut.—\$26,391.—The Tucker Co., 339 New Park Ave., Hartford, Conn.

U. S. Marine Corps, The Quartermaster General, Washington 33, D. C.

Refrigerator Boxes—982 cu. ft. (Exceeds \$250,000)—Haussmann Refrigerator Co., 2401 North Leffingwell Ave., St. Louis 6, Mo.

Chicago Quartermaster Depot, QM Purchasing Division, 1819 West Pershing Road, Chicago, Illinois

52-1301 B refrigerator mechanically cooled, electric, 8 cu. ft.—100 cu. ft.—\$112,252.—Ranney Refrigerator Co., Greenville, Michigan

52-1305 B refrigerator mechanically cooled, electric, 200 cu. ft.—\$30,237.—Frigidaire Sales Corp., 300 Taylor St., Dayton 1, Ohio

52-1450 B chest, ice storage—5005 cu. ft.—\$250,000.—Haussmann Refrigerator Co., 2401 N. Leffingwell Ave., St. Louis 6, Missouri

52-1310 B refrigerator, electric, 20 cu. ft.—\$100 cu. ft.—Howard Refrigerator Co., Inc., 4745 Worth St., Philadelphia 23, Pennsylvania

52-1310 B refrigerator, electric, 65 cu. ft.—\$1,000 cu. ft.—(Exceeds \$250,000)—Statistical Mfg. Co., Inc., Trenton Ave. & Ann St., Philadelphia 34, Pennsylvania

52-1427 B ice cream plant, portable, spare parts and tools—var. (Exceeds \$250,000).—Enermy Thompson Machine and Supply Co., 1549 Inwood Ave., New York 22, N. Y.

52-1428 B cabinet, ice cream storage, electric—500 cu. ft.—\$79,950.—Frigidaire Sales Corp., 300 Taylor St., Dayton 1, Ohio

52-1423 B cabinet, frozen food display—800 cu. ft.—(Exceeds \$250,000).—Ace Cabinet Corp., 356 Belleville Ave., New Bedford, Massachusetts



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20 years experience
in designing, stamping,
forming, welding,
brazing, cleaning,
and finishing
refrigeration
lowsides



A fully illustrated brochure on Kold-Hold's production line facilities will give you specific and complete details. A copy is yours for the asking. Write today!

KOLD-HOLD
MANUFACTURING COMPANY
500 E. Hazel St., Lansing 4, Michigan

With an extended manufacturing plant, modern production lines built and equipped to improve quality and cut production costs, years of experience in designing and engineering refrigeration lowsides, Kold-Hold is well organized to handle special production run contracts for a limited number of fixture manufacturers.

If you build home refrigerators, refrigerator display cases, coolers, cabinets, or any type of refrigerated equipment which needs lowsides, you should investigate Kold-Hold's ability to produce these for you.

Years of experience in the refrigeration field allow us to place at your disposal our testing laboratory, engineering facts, know-how and designs that have already been proven successful.

A large assortment of standard designs and sizes make it possible to easily adapt a unit to your present design of equipment and bring you Kold-Hold's efficiency and dependability at low cost.

You can depend upon Kold-Hold to meet your heat exchange problem. Let's explore the possibilities together. You are under no obligation.

Have you discovered

FREEZERS

ICE CREAM CABINETS
HARDENING CABINETS
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UPRIGHT FREEZERS
BAKERY FREEZERS
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ANGLE COUNTER
FREEZERS
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FREEZERS
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WALK-IN
LOW TEMPERATURE
WALK-IN
WALK-IN WITH
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QUICK RELEASE
UP TO 84 TRAYS
ALSO
AUTOMATIC CUBE MAKERS

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REACH-IN
STAINLESS
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DOUGH RETARDERS

DISPLAY CASES

OPEN AND CLOSED
DAIRY WALL CASES
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AIR CONDITIONING

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STAINLESS STEEL RESTAURANT EQUIPMENT

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STAINLESS STEEL
DRINKING STATIONS
SANDWICH UNITS
SALAD WALL CASES
STAINLESS STEEL
PANELING
WATER COOLERS

BEER SYSTEMS

DIRECT DRAW SYSTEMS
BEER COOLERS
TAVERN WORK BENCHES
BEER PUMPS
ACTIVATED CARBON
FILTERS FOR PUMPS
CORK DUTCH FOR
DIRECT DRAWS
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Steel Air Hose For
Direct Draw Beer Jobs
Using AIR-AIR BLOWERS
BEER PUMPS
TAPS AND BODS-
WALL BRACKETS

BOTTLE COOLERS

REMOTE
SELF-CONTAINED
COMBINATION CUBE MAKER
AND BOTTLE COOLER
STAINLESS STEEL TAVERN
BOTTLE COOLERS

Many dealers have found discovering FRIGITEMP has been very profitable to them, by making use of our "knowledge" and "know-how" in the refrigeration equipment and supply field.

Not only do we carry tremendous inventories, our custom department will make any piece of commercial equipment to order. You may need a very narrow Reach-in box or an extra small Soda Fountain, an odd shaped Display Case, or a Multi-Purpose Fixture, even if it hasn't been made before we will gladly make it up for you to your specifications out of Stainless Steel, Porcelain or any other materials.

We have a special Beer and Carbonated Beverage division and can supply any equipment required in this field, including our own very popular Direct Draw Keg Coolers in any combination.

We sell hundreds of our own famous (Beer Saver) Direct Draw Systems, an inexpensive easy-to-operate fool-proof system for direct draw of draught beer.

If there is something you need in a hurry, the chances are that we have in stock... can get it... or we will make it for you. Our own controlled sheet metal shop will make any piece of Restaurant, Tavern or Commercial piece of equipment to order. Our Wood Walk-in plant will make any Normal, Low Temperature or Two Temperature wood walk-in to your specifications - rapidly.

All of these services are made available by top FRIGITEMP management who believes that a wholesale refrigeration house... must be of service at all times... must be staffed with responsible personnel to handle any and all problems that may arrive... and not only the easy problems!

That is why FRIGITEMP is trying to take in as much as possible in our field in order TO SERVE YOU BEST!

REMEMBER! We can make any piece of equipment to order, in any size, shape or material.

REMOTE AND SELF-CONTAINED COMBINATION BOTTLE COOLERS AND CUBE MAKERS



A multitude of satisfied users have the popular FRIGITEMP Combination Bottle Cooler and Cube Maker. You will be missing plenty if you do not stock and sell these units. They really do a grand job for bottle cooling and cube making.

Available in 4 and 6 ft. lengths and comes supplied with the latest model inland trays.

ACT TODAY!!... MAKE FRIGITEMP YOUR SUPPLY HOUSE FOR ALL OF YOUR REFRIGERATION REQUIREMENTS AND SEE HOW THE PROFITS WILL ADD. WRITE FOR ILLUSTRATED LITERATURE AND PRICES!

FRIGITEMP corporation

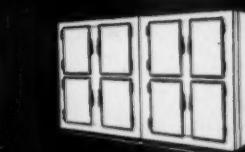
931 Bergen Street Brooklyn 16, N. Y.
MAin 2-9093

FRIGITEMP corporation

NEW STAINLESS STEEL BAKERY FREEZERS WITH HOT GAS DEFROST UNIT - COMPLETELY AUTOMATIC

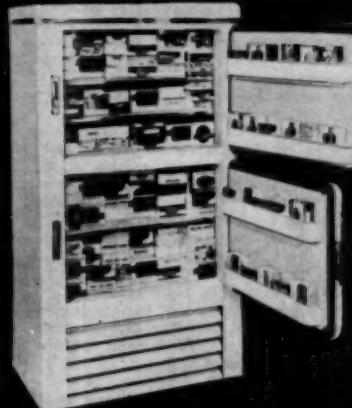


Look at this remarkable feature... to get Automatic Defrost, all you do is run the lines into the fixture from machine, all necessary controls and hook-ups have already been completed for you.



FOOD PLAN OPERATORS — TWO DOOR 18 CU. FT. HOME UPRIGHT FREEZER

YOUR ANSWER TO COMPETITION



This home freezer requires less floor space and freezes faster. Will go through small door openings easily.

Features to talk about:
Heavy duty baked enamel interior and exterior. Flashy chrome trim around door edges. Easy swinging doors with extra storage shelves. All steel welded construction for durability.

**THE F-18 HOME FREEZER
EASES ALL
SALES RESISTANCE**

CALIFORNIA REDWOOD WALK-IN BOXES



We at FRIGITEMP believe we have the perfect wood walk-in box. Custom built, prefabricated and completely clad with GENUINE CALIFORNIA REDWOOD, inside and out.

Now you get a wood walk-in that is not only very beautiful, yet it will last for a lifetime! Redwood is called the everlasting wood. With the use of Redwood you don't have to use metal boxes. It cannot corrode, discolor or get pock marked... you get all the benefit of additional insulation that is in wood.

Easy to erect and add along side too... there is nothing better than a CALIFORNIA REDWOOD WALK-IN BOX from Frigitemp.